

JULY 1996

HP Professional

Why Is This Man Smiling?

**HP's Lew Platt Stands
On The Edge Of True
Distributed Computing**

**NETWORK PRINTING
The Quest For
Compatibility**

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**CHANNEL REPORT
HP's Partners
Program**

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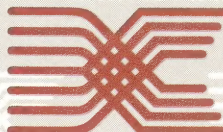
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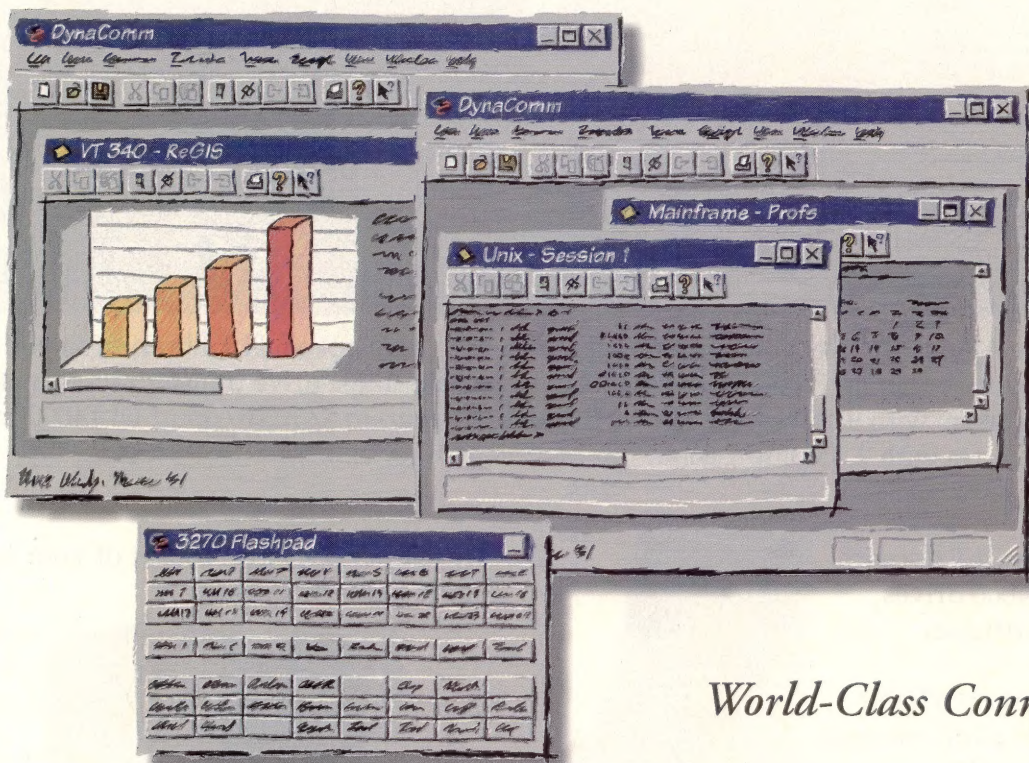
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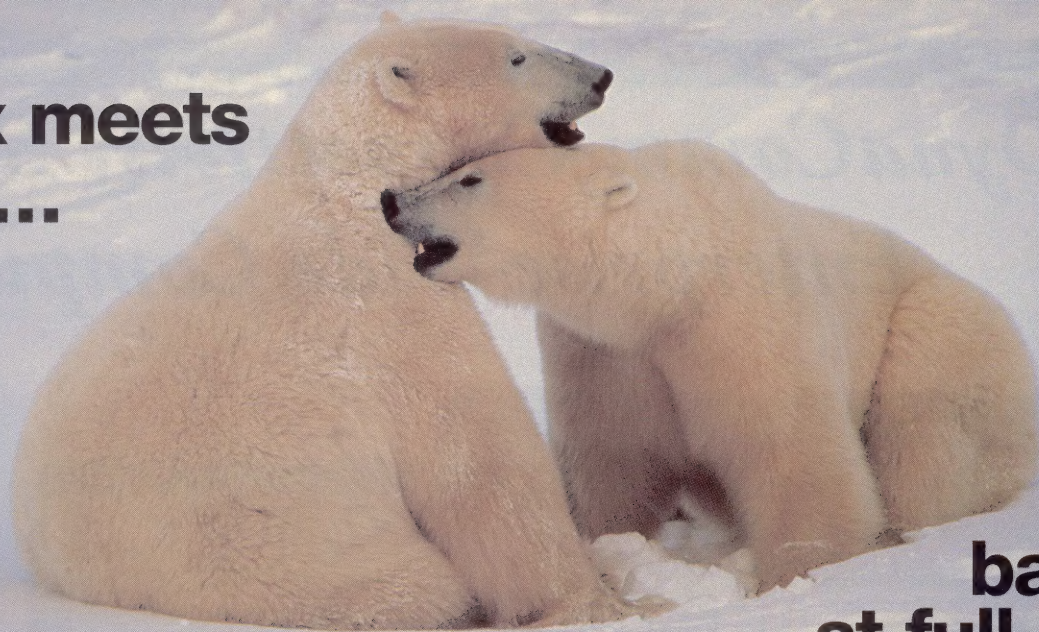
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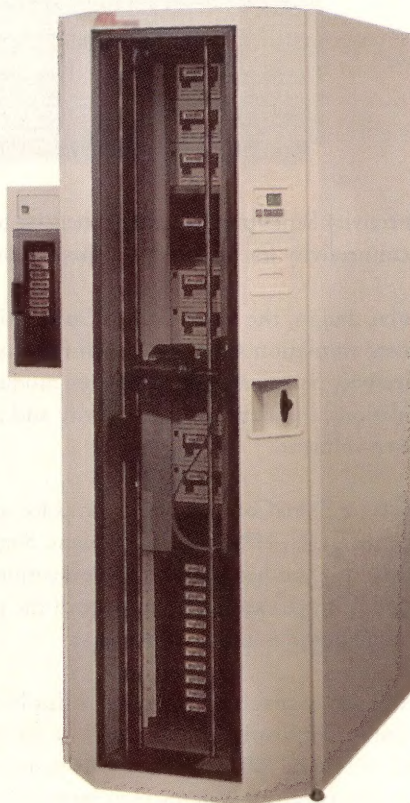
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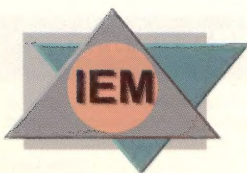
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They ate a hearty meal. They sang a silly song. They laughed a cocky laugh. And some of them danced while the band played on. Although you couldn't tell at first, it was a funeral. But it was still an occasion for celebration. It was "The Day The Mainframe Died" at HP.

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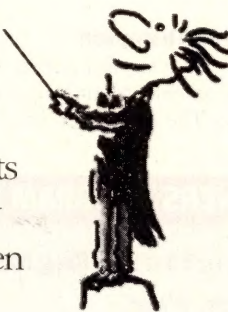
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HP PROFESSIONAL ISSN 0896-145X is published monthly by Cardinal Business Media Inc., 1300 Virginia Dr. Ste. 400, Fort Washington, PA 19034. Subscriptions are complimentary for qualified U.S. and Canadian sites. For reprints, contact Reprint Management Services, 505 E. Airport Rd., Lancaster, PA 17601; (717) 560-2001, FAX (717) 560-2063. Periodicals postage paid at Fort Washington, PA 19034, and additional mailing offices. POSTMASTER: Send all correspondence and address changes to HP PROFESSIONAL, P.O. Box 3053, Northbrook, IL 60065. COPYRIGHT © 1996 by Cardinal Business Media Inc. CANADIAN POSTMASTER: Send all correspondence and address changes to Cardinal Business Media, C/O N.L., P.O. Box 44, RPO Rockwood Mall, Mississauga, ON L4Z 9Z9. All rights reserved. No part of this publication may be reproduced in any form without written permission from the publisher. All submitted manuscripts, photographs and/or artwork are sent to Cardinal Business Media, Inc. at the sole risk of the sender. Neither Cardinal Business Media, Inc. nor HP PROFESSIONAL magazine is responsible for any loss or damage. HP PROFESSIONAL is an independent journal not affiliated with Hewlett-Packard Company. HP and Hewlett-Packard are registered trademarks and HP PROFESSIONAL is a trademark of Hewlett-Packard Company. Third class enclosure in this version of HP Professional.

Canada Post International Publication Mail Canadian Distribution Sales Agreement #IPM0264431

Printed in U.S.A.

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It's a business model as old as the Pyramids. Doing the same, and usually more, with less. Less money, less people, less resources, less time. From police departments to Fortune 500 corporations, it's the business model of the '90s. Hell, it's a lifestyle. And except for a couple of companies, like Ben and Jerry's and HP, more is less and less is more when it comes to resources; and even Ben and Jerry have thawed their '60s peace, love and understanding approach to conducting business.

For the past three months, I've commented on how technologically advanced, financially successful, socially acceptable and politically correct HP has been this past year. HP announced an NT strategy, while yanking the cord on its own last mainframe. We saw HP earn over \$31 billion and rise to the Fortune 1000 top 20 ranks. Lew Platt, himself having been a single parent, encourages a liberal and fair policy toward working parents, creating an environment of dedication throughout the organization.

All that success, growth and super fuzzy feelings are grand if you're an HP employee. But what if you don't work for the hottest, friendliest, funnest company on the planet? What if you're like everybody else? Where are your loyalties? Do you feel safe? We all realize that there are no guarantees and hopefully most of us aren't paranoid; but do you really feel secure in your career? Does your employer feel the same about you?

FAILURE IS NOT AN OPTION

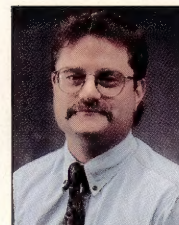
In the Philadelphia area alone, institutions such as Campbell's Soup, Whitman's Chocolate, Lehigh Valley Dairy and Fleer, a sports card manufacturer, have all recently closed their doors — some right in the face of hundreds of loyal employees. And not because they did a bad job or produced an inferior product. They bolted the doors simply because it was cheaper to do so.

They imploded the Campbell's plant. Some of the 140 employees at Lehigh Valley were offered the opportunity to apply for their job at another plant for 60 percent of their salary. Fleer went under because of the baseball and hockey strikes. Who'd a thunk it? Show up for work one day to find all machines, desks and supplies gone, with security guards at the front gate. Fleer's competitor, Pinnacle Brands, once featured on ABC's Nightline for its direct approach to employee motivation, didn't close its doors; it had no layoffs and no wage cuts. Instead, the CEO told employees "Pinnacle no longer owes you anything." In other words, produce or get out. Some employees stayed. Most left.

In that same report, Dana Mead, chairman and CEO of Tenneco, a \$14 billion manufacturing company, emphasized employment security versus job security, suggesting employees be like opera singers, changing their repertoires every year or two. In the same breath, he admits employers must "stop hiring from the neck down" and start including employees in on the goals and strategies of the company.

Employers must provide a reason for loyalty, by empowering employees, directing that empowerment, providing incentives and sharing the vision of the company. And in that regard, employees today must then be flexible, accountable for that empowerment, and willing to train and learn. But for this to happen, there must be trust between the two, and I'm not sure if that has or will ever exist.

What do you think? It's 5:00 p.m. How does your repertoire sound?

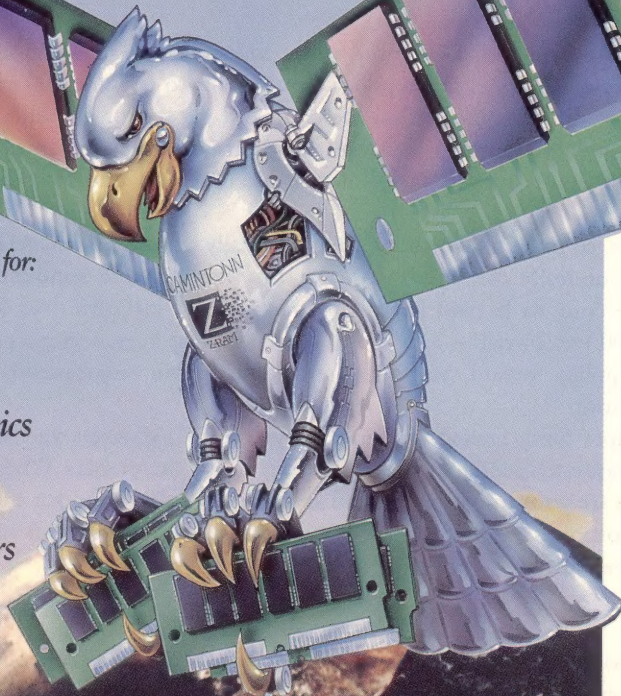


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INDUSTRY WATCH

George A. Thompson

**MAPPING A NEW COURSE
WITH NETSERVERS**

Who says HP can't make HP-UX and Windows NT work together? In May, HP introduced its "MAP" (Manageability, Availability, Performance) clustering strategy for its HP NetServers. First, HP's MC/ServiceGuard (currently an HP-UX solution), will be ported to the Intel/Windows NT platform. Secondly, HP will support "Wolfpack," Microsoft's Window NT clustering technology. According to Gabe Gotthard, product marketing manager with HP's Network Server division, MC/Service Guard and "Wolfpack" will "provide complementary capabilities." Because "Wolfpack" is HP's strategic API for NT clustering, HP will be a lead partner with Microsoft, collaborating on programs for marketing, distribution, services and support. The HP/Wolfpack solution is expected to be delivered sometime in 1997, says Gotthard. But no time frame has been set for the availability of the MC/Service Guard port, "because it's a complex product and we have to make sure that it works properly. That takes extensive testing." Lastly, HP announced that Oracle Parallel Server (available on HP-UX) will be ported to run on the Intel-based HP NetServer platform.

**SERVING UP NEW
HP NETSERVERS**

Along with the software announcements mentioned above, HP also introduced two new NetServers — the LX Pro and the LH Plus. The high-end LX Pro server (starting at \$14,340) can be configured with up to four Intel Pentium Pro CPUs (166 MHz or 200 MHz). Exclusive to the HP NetServer LX Pro is ECC memory (2 GB maximum) scrubbing, an "intelligent mem-

ory" error-correction capability, formerly only available on UNIX systems.

The midrange LH Plus server (starting at \$5,800) can be configured with up to two Pentium CPUs (133 MHz and 166 MHz) but is upgradeable to the Pentium Pro. Both the LX Pro and LH Plus systems include 512 MB RAM, a new Extended Data Output (EDO) architecture, five PCI expansion slots and two integrated Wide SCSI-2 controllers. All models also include a hot-swap disk subsystem with a built-in dual SCSI backplane. Both the LX Pro and LH Plus are shipping this month. There also are plans to introduce a Pentium Pro-based LH server — the NetServer LH Pro — in the third quarter of this year.

HP also relaunched its Trade In/Trade Up program so current NetServer customers will be able to trade up their current products for Pentium Pro CPU-based servers.

MORE NEW NETSERVERS

At PC Expo in June, HP got around to polishing off the low end of its NetServer product line with the addition of the NetServer 5/166 LC (starting at \$3,560). Based on Intel's 166 MHz Pentium CPU, the NetServer 5/166 (now available) comes with HP's DeskDirect PCE 10BaseT network card (NIC) already installed. Features include 256 KB write-back cache, 32 MB RAM (expandable to 192 MB), five PCI expansion slots, integrated twin-channel Fast SCSI-2 controllers and 16.8 GB of internal disk storage.

MORE NEW PA-RISC SERVERS

As if not to be outdone or outclassed by its own PPG division (responsible for HP's PCs), HP's CSO division (responsible for its PA-RISC products) introduced two new HP 9000 D-class servers — Models D260 and D360 —

the day before the NetServer announcement. HP's D-class servers (pricing begins at \$36,700), considered an entry-level RISC product, competitive with high end Intel-based servers, include two PA-7200 CPUs, 128 MB of RAM, a SCSI-2 interface, a CD-ROM drive, networking interfaces and HP-UX 10.01. Like their predecessors, the new D-class servers are expected to be field upgradeable to the PA-8000 in the fall of this year.

**HP DESKTOP PCS ON
THE FAST TRACK**

By now, everyone knows about the Federal Express Powership software that allows customers to track the status of their FedEx packages. Well, under a recent contract signed with FedEx, HP Vectra desktop PCs will become one of the standards for high-volume customers using the Powership software. As part of the agreement, FedEx could purchase a variety of HP Vectra PCs, NetServers, networking products and peripherals for its internal use as well as HP UNIX servers and workstations.

AN NT-RIGUING PARTNERSHIP

HP and Insignia Solutions (Mountain View, Calif.) recently formed a strategic alliance to jointly work on coupling Insignia's NTRIGUE, its Windows Application Server software with HP-UX software. NTRIGUE 2.0 (\$1,995 for five concurrent sessions) is now available with HP enhancements like HP-HIL keyboard support, HP-UX printer support, a one-click Windows NT session from within HP-UX, a one-click PC application start-up from within HP-UX as well as cut-and-paste text and graphics between HP-UX and Windows NT; plus XDM support, autologin, and NFS client and server support.

Insignia NTRIGUE complements
(continued on page 51)



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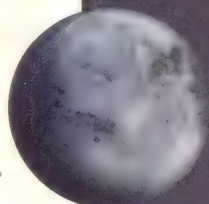
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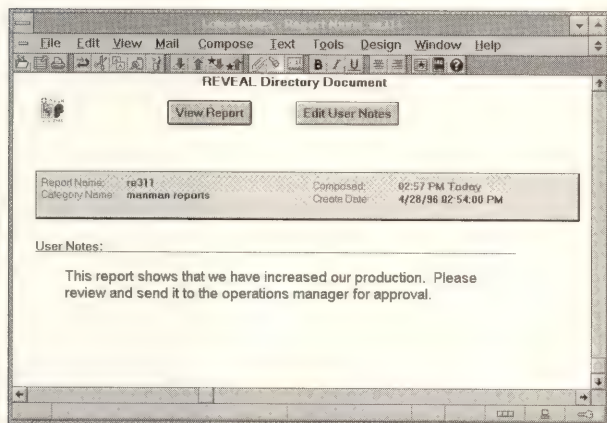
HPWORLD '96

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O'PIN Systems Reveals Its Lotus Notes Capabilities



REVEAL/LN

- ▶ Supports clients using IBM-compatible PCs with Windows 3.1 or Windows 95
- ▶ Server runs on HP-UX, MPE/iX or IBM AIX
- ▶ Requires WinSock-compliant TCP/IP stack
- ▶ \$2,500 per server

O'PIN Systems

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Ste. 635
7900 International Dr.
Bloomington, MN 54235
tel: (612) 883-2888
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75317.670@compuserve.com
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CIRCLE 355 ON READER CARD

With about 2 million people using Lotus Notes for e-mail, as a messaging backbone and as a database/workgroup/workflow technology that allows them to share, comment and plan on enterprisewide information, it's not surprising that O'PIN Systems (Bloomington, Minn.) offers REVEAL/LN for Lotus Notes. REVEAL/LN is a report distribution and presentation solution that seamlessly links desktops using Lotus Notes with production reports created on large servers. From Lotus Notes, users can access reports located on any server on the network, and view or mine them using REVEAL.

The administrator, or even end users, can define complex routing and escalation rules. Using REVEAL and Lotus Notes, you can send

only the specific pages each manager needs to approve. Once approved, you can release those report pages to the users who have access to them. All that can be done automatically, without producing any paper.

REVEAL's GUI allows MIS to keep information in a central secure location. For example, an 8 MB, 10,000-page report can be referenced in thousands of Notes databases and can be logically "replicated" by users from desktop to desktop, or even from server to server. From Lotus Notes, users can access all documents, images or data directly from a desktop. Notes also allows automatic data replication across servers and desktops as well as workflow management.

Users can search reports for a specific string of characters, or create a new sub-report that contains all occurrences of the selected string. Each line in the sub-report is then hyperlinked to a corresponding line in the main report — clicking on one line within the sub-report, brings up the corresponding page of the main report. While Lotus Notes can supplement REVEAL's security at the user's level, only REVEAL provides pinpoint security at the page level. And, while Notes is able to directly store

one-page documents, REVEAL can store and archive reports that are thousands of pages long.

Other features include: "find all" string searches that locate and group all occurrences of an item with a single search; the ability to scroll through reports with the headings in place; the REVEAL Administration Manager (RAM) which allows you to define users and reports; the report viewer that allows you to look at multiple reports side by side; the integration of report information with familiar Windows applications — Excel, Lotus 1-2-3, cc:Mail, Microsoft Mail and fax; and mouse-driven commands, icons, pull-down menus, multiple windows and the ability to cut and paste.

The server runs on HP-UX, MPE/iX or IBM AIX systems. It supports Microsoft Windows 3.1 or Windows 95 clients. It requires a WinSock-compliant TCP/IP stack for connecting to the server. Price is \$2,500 per server.

—Deborah Schwartz,
Associate Editor

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CIRCLE 133 ON READER CARD

When you need finely tuned message oriented middleware, you can count on the performance of Piccolo. Powerful, open and cost-effective, this scalable solution ensures peer-to-peer transport independence so applications can run on TCP/IP, NetBIOS and asynchronous protocols without any changes to the code. It also offers a bi-directional data pipe to link applications anywhere on the network. And you'll applaud its short learning curve, thanks to a simple API that is the same across all supported platforms. So if your heterogeneous environment includes Tandem's NonStop Kernel and Integrity Systems, Microsoft (Windows 3.1, 95 and NT), SGI-IRIX, SCO UNIX, Sun Solaris, IBM AIX and OS/2, HP-UX and Apple PowerPC System 7, Piccolo is key.

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CIRCLE 353 ON READER CARD

To help reduce the traffic of shared high-volume network printers, and provide users with immediate, low-volume check printing capabilities, Troy has released a magnetic ink character recognition (MICR) laser printer based on HP's 5P laser printer. The Troy printer uses Troy's Check Writing Software designed for PC-based accounting packages in a Windows environment.

The Troy MICR printer line ranges from the low-end 6 ppm Troy 506 MICR Printer, 1-10k checks per month, for \$1,799; to the midrange 12 ppm Troy 512 MICR Printer, 10-20k checks per month for \$3,295; to the high-end 24 ppm Troy 524 MICR Printer, 20-100k

checks per month for \$5,995.

For issuing a small-volume of checks, the 506 printer is appropriate for banking, insurance, mortgage, payroll service bureaus as well as home-office environments.

The Troy 506 Laser Printer's features include, producing 1,440 checks per hour; printing on different-sized checks from two trays; issuing checks from multiple accounts; and printing complete checks including MICR line, signatures, logos and check overlays. The 506 printer also uses Troy's single in-line memory module (SIMM).

The Troy 506 laser printer features 600 x 600 dpi resolution, 6 ppm output, a 20 MHz RISC-based processor with cache, MCPL personality, enhanced HP PCL 5 and 45 scaleable typefaces. You get an MICR toner cartridge and the SIMM. The software is sold separately. If you already have an HP 5P printer with MICR capabilities, Troy offers an MICR toner cartridge, SIMM with MICR, security fonts, a user's guide and an MICR alignment gauge. Troy provides MICR supplies for LaserJet II and III printers.

Troy Systems broadened its product line of desktop check printers with the 24 ppm Troy 524 MICR Printer. The new

Troy 524 MICR printer, check providers printing on the LAN/WAN. The 524 printer provides check printing- including MICR encoding, logo and signature-from blank cut sheet check stock. It offers financial control, security and remote check disbursement capability with minimal changes to most accounting and management software.

The 524 MICR printer provides 600-x-600 dpi printing resolution, can handle 11-x-17-inch paper. The 524 MICR printer features 4MB RAM, a 40MHz RISC-based processor with cache, enhanced HP PCL 5, genuine Adobe PostScript Level 2 language (optional), and 45 scaleable typefaces. In addition, Troy and HP have developed print job language (PJJ) commands for MICR mode activation and password protection.

The Troy 524 printer is the latest release in a series of Troy MICR products for the desktop check printing market developed in alliance with Hewlett-Packard Co. Troy serves as HP's exclusive U.S. source for MICR solutions based upon the popular HP product line of desktop LaserJet printers.

—Andrea Zavod,
Contributing Author

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- Monitors console traffic in real time, responding to pre-defined events with visual or auditory alerts, or through third-party or user-defined applications such as email or paging software
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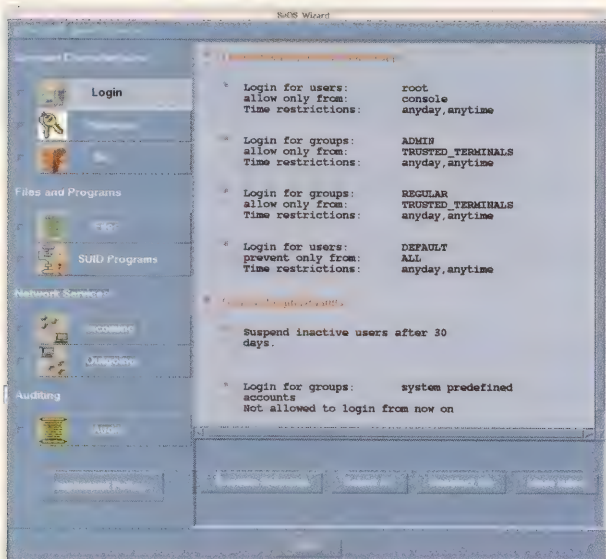
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CIRCLE 478 ON READER CARD

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Playing It Safe With Memco's SeOS



SEOS 1.4

- Offers default policies for baseline security, with various degrees of strictness
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CIRCLE 356 ON READER CARD

When Lavon Towe, administrator of application controls at McDonnell Douglas Helicopter Systems (Mesa, Ariz.), went looking for a UNIX security product, all she found were monitoring tools. "They didn't stop users from doing something they weren't supposed to, they just reported the situation to the administrator after the fact," says Towe. She finally found what she was looking for with Memco Software's (New York, N.Y.) SeOS 1.4.

Unlike security products that concentrate on protect-

ing data in transit on network lines, SeOS Version 1.4 protects data on servers in distributed environments. It doesn't require a permanent replacement of original system binaries. SeOS features distributed security administration through the ability to monitor, configure and update security policies from a central location. It offers default policies for baseline security, with various degrees of strictness (permissive to restrictive).

An update to the security policy, executed centrally, is replicated to other "subscribing" servers, locally and remotely. SeOS 1.4 protects any system process (daemons). In addition, SeOS has a UNIX-like command language. Also included is a Security Wizard that helps novice administrators implement elementary security policies through a GUI.

Towe, who started using the product in November 1995 on a test server, currently has SeOS (which acts as a dynamic extension to UNIX) protecting three additional HP servers running HP-UX. She plans to eventually expand that to include the entire network, which comprises about 700 users. "For us it's 'the real thing,' because it takes the best of

native UNIX security and fills in the holes."

According to Towe, the biggest problem with UNIX is that "there are a number of different ways to get to root. With SeOS, just knowing the root password doesn't give you automatic access to root privileges." SeOS begins by controlling who may log in and when. And once they are on the system, SeOS actively regulates user access to information resources. SeOS increases the privacy of files and programs, audit trails and accounts (user IDs). It also protects systems from undesirable Internet access. Additionally, SeOS prevents attacks by Trojan horse and back door viruses by governing the execution of privileged (suid/sgid) programs.

SeOS Version 1.4 is available for HP-UX 9.x/10.x, IBM AIX 3.2.x/4.1.x and Sun Solaris 1.x/2.x/x86 platforms. Pricing begins at \$1,000 per server. SeOS Security Administration is available for the same platforms with prices starting at \$5,000.

—Deborah Schwartz,
Associate Editor

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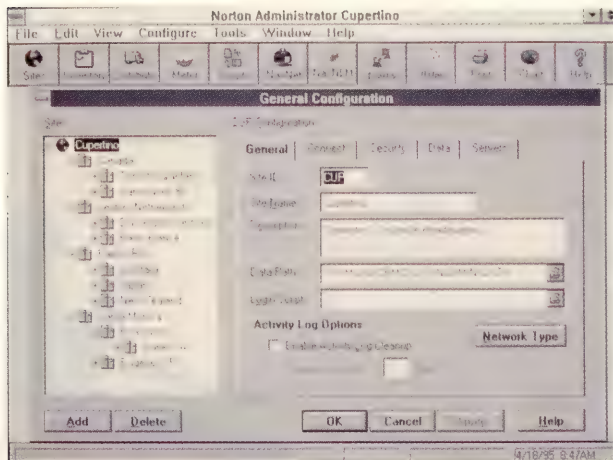


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CIRCLE 154 ON READER CARD



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CIRCLE 351 ON READER CARD

Symantec's (Cupertino, Calif.) NAN (aka Norton Administrator for Networks) rhymes with WAN. And that's an interesting coincidence because NAN 2.5, introduced this past March, is a popular PC LAN systems management package supporting WANs. With 1,700 PC users on a WAN dispersed across nine sites throughout the state of Oregon, "the WAN aspect is the most significant aspect of NAN," says Steve Fuchs, lead system engineer for Blue Cross and Blue Shield of Oregon (Portland, Ore.). And NAN 2.5 can be used with TCP/IP protocols. Although Fuchs thinks the scripting language could be more powerful, NAN's [soft-

ware] distribution capabilities have improved dramatically.

NAN's WAN support includes automated installation, the ability to create site hierarchies, scheduled roll-ups, data throttling, compression, roll-up of delta changes and password security for the console.

NAN also works well within HP's OpenView for Windows environment. In fact, the PC software distribution technology already in OpenView has been licensed from Symantec. "We've been an OpenView OEM for at least two years," says Jonathan Niednagel, group product manager for NAN. But he makes it clear that "[NAN] only manages the desktop PC, the PC [Intel-based] servers and the wire in between."

NAN is comprised of three software modules: desktop inventory (hardware and software), software license metering and the aforementioned software distribution. Usually, a NAN site includes native software agents (available for MS-DOS/Windows 3.1, Windows 95, Windows NT, OS/2 or Mac) running on desktop PCs attached to a NAN server, or database, (Banyan Vines, Pathworks, IBM LAN Server 2.5, Microsoft NT Advanced Server and LAN Manager, Novell NetWare) and a cen-

tral Windows (3.1 or 95) console. A Windows workstation running Site Manager data replication software is optional.

NAN works above the protocol layer in the network, so users don't need to care about transport protocols. "All you need is a mapped drive," says Niednagel. The NAN database collects the agent data and resides on a shared drive. "It's a licensed proprietary database; the same one used by Banyan Vines Street-Talk." An ODBC driver makes the data accessible to any SQL-based query and reporting tool.

Other NAN 2.5 features are better integration with pcANYWHERE, Symantec's remote control software and support for Novell's NetWare Directory (NDS) which allows the administrator to use existing NDS global directory. "You can drill down to individual workstations and with our inventory agent, track over 300 pieces of information. It's not a glorified launcher," stresses Niednagel. "In the near future, NAN will go from point product to a suite solution. That's our big focus for this year."

—George A. Thompson,
Senior Editor

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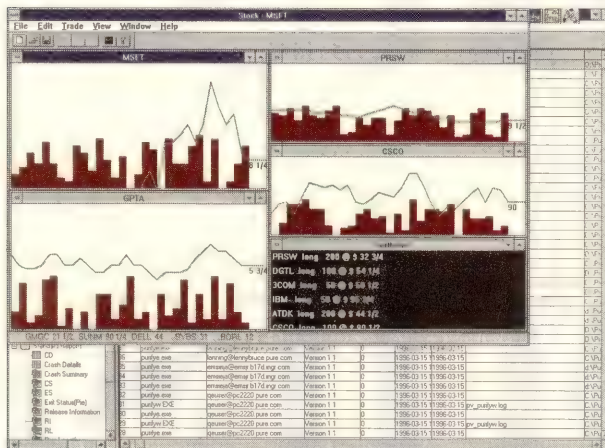
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CIRCLE 149 ON READER CARD

PureVision Fine-Tunes The Test Run



PUREVISION

- Monitors the use and function of applications in remote, distributed environments
- Identifies when a crash occurred and under what circumstances
- \$18,000 (starting price); \$7,000 for each additional collector

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CIRCLE 353 ON READER CARD

Most software developers rely on remote end users to test-run software releases during alpha or beta testing. Gathering that data can be difficult. It's time consuming to gather information on usage patterns and features used, reported bugs are difficult to reproduce and the application's overall effectiveness is hard to gauge. All too often, the end users' information is incomplete or inaccurate, making it difficult to collect test data, and even more difficult to meet release dates. So where do you find an end user test tool that transfers a software's performance and user activity into useful, complete and accurate test data? Look no further than Pure Software's (Sunnyvale, Calif.)

PureVision. With PureVision, developers can automatically monitor the use and function of applications in remote, distributed environments.

Developers will be able to tell which applications and features are being used and how often, and the number of runs per site and per hour. And, they will also be able to determine the effectiveness of the testing process itself. According to Mike Armistead, director of product marketing for Pure Software, PureVision is designed to augment the conversations between developers and users by replacing anecdotal information with objective data. "Instead of spending time gathering information, like 'what version are you using?' or 'what environment are you running in?'" says Armistead, "[developers and end users] can spend more time on larger, more strategic issues."

The debugging process is simpler with PureVision's ability to identify when a crash occurred and under what circumstances, including a full stack trace, as well as fatal defect and application exit information (including exit code), memory heap size at the time of exit and fail-safe monitoring. "Getting accurate data on defects and crashes eliminates the time it takes to wait for test sites to

send crash-related data, [thus] reducing the turn-around time on reported defects," explains Armistead. PureVision provides more than 20 preconfigured charts and tables to help organize the data for quick feedback and statistical comparison.

These charts and graphs also can be used to spot failure patterns to help the development team get a head start on the debugging process. In addition, PureVision offers an SQL-based, point-and-click report builder to create custom reports. PureVision also tracks the use of particular application features so developers can make improvements and changes for the next version. "Knowing what applications are being used, understanding, their usefulness and likewise which applications users haven't found difficult helps answer the question, 'Is this particular application or feature worth it?'"

PureVision is designed with an open architecture, based on the Microsoft ODBC standard and industry-standard SQL. Price is based on the number of users and starts at \$18,000 (including a server and one collector platform) and \$7,000 for each additional collector platform.

—Andrea Zavod,
Contributing Author

One good power surge was all it took.
The whole computer room's knocked out.

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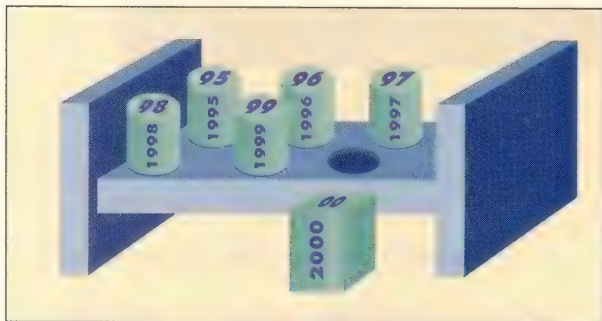
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CIRCLE 354 ON READER CARD

As the new millennium approaches, companies are scrambling to solve the year 2000 problem; entering the two-digit year code of 00 causes computers to think about 1900, not 2000. Until now, there have been two options: use the tools available (usually only to systems with large installed bases such as the IBM AS/400) which only flag the affected lines in the code leaving it to the user to make the changes; or go through the code line by line. Enter DB-Net Inc. (Columbus, Ohio), with an automated solution for the year 2000 problem — for HP systems.

“Prior to DB-2000, the installed base could only turn to their internal staff or consultants to rewrite code, but that proves time-consuming, error-prone and expensive,” says Steven Verona, vice president of marketing. DB-

Net now provides its DB-2000 date management tool as an add-on to their existing migration service offerings or as a standalone product.

But, DB-Net takes a slightly different approach in their migration strategy; they don't sell their suite of migration tools to the user. According to Verona, their experience enables them to complete the migrations more efficiently than a third party. Additionally, by performing the migration service in-house, DB-Net can provide screen enhancements and additional utilities.

First, a broad sample of the most difficult source code and a complete list of the application programs, subroutines, intrinsics and lines of code is required. This determines the size of the project. Second, DB-Net provides a free initial source code evaluation and migration proposal. Third, the cost of the migration is assessed. This varies, depending on the proprietary operating system from which the client is migrating, the number of programs within an application, intrinsics or subroutines, and lines of code, and the database structure. Finally, a complete application backup and application documentation, designation of the targeted hardware, UNIX and

database platforms, and the preferred version of COBOL is needed.

The migration begins with HP 3000 backups on cartridge or reel-to-reel tape being restored on HP 3000s. Then, a series of programs are run to check, convert and combine the programs onto tape. These tapes are copied to UNIX machines and programs are executed to split and further convert to UNIX COBOL. Next, batch streams are set up to compile and link the software. DB-Net performs similar functions on the data that is subsequently loaded into the target file structure. Then, testing begins. Then, the “new” software is returned for implementation and automatic data migration. The migration tools consist of automated programs that check proprietary COBOL code for things that create problems on other compilers.

Additional utilities include: the UNIX Command Interpreter, a menu and command processor; Show A File, to review a file on the terminal; and the UNIX File Manager, to review directories and files, and delete, create, modify and rename files.

—Deborah Schwartz,
Associate Editor

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As an option to DataExpress, ODBCLink greatly enhances desktop access, by

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US Sprint Holds The Line With Boole & Babbage

While systems management vendors and market analysts promote their formulas for successful distributed systems management (DSM), the marketplace continues to be befuddled by limited frameworks, integrated solutions and point products. Why is there no single checklist approach to sizing up DSM requirements? There is no simple single solution or strategic approach because networks are like snowflakes. No two are alike.

The big questions for IS managers are: How does one make decisions about network integration when there is so much to

tions but the wrong mix of operating environment requirements is no solution at all. And often, companies are forced to forge their own methods for taming their enterprise.

Basically, there are point solutions, integrated solutions and framework solutions. Each solution type has its limitations. Point solutions are limited in function, integrated solutions are limited in the number of platforms they support, and framework solutions can collect data only from devices supporting software agents with SNMP-compliant management informa-

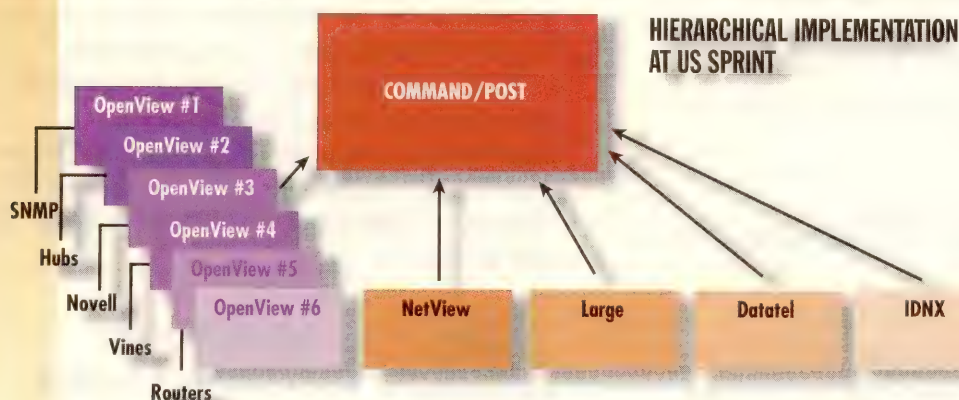
infrastructures, anarchy rules in distributed systems management. US Sprint, for example, an innovator in the communications industry, offers services ranging from residential telecommunications to some of the most sophisticated integrated voice, data and video services available today. Millions of customers worldwide depend upon Sprint's network-based services.

Sprint's internal network comprises a mix of protocols including IP, SNA and AppleTalk, and critical devices including non-SNMP multiplexers as well as IBM VM mainframe sys-

tems, HP UNIX servers and applications. Although diverse, all these systems access the same physical network, and failures in one network type can easily affect many devices, even those operating different protocols.

Like many other organizations, Sprint historically depended upon multiple element management systems to

report on the status and health of these diverse systems. Currently, these management systems include IBM NetView for MVS managing the SNA network, six HP OpenView systems monitoring the IP network, two NetView for AIX systems managing critical AIX servers, and a number of smaller device-specific and protocol-specific management applications.



integrate? And, what can companies do to limit risks when buying, implementing and running these disparate systems?

There are many products on the market today that address only certain types of networks, certain types of protocols, certain types of network architectures and certain types of organizational structures. A product that supports the right set of func-

tion bases (MIB). Many network environments include legacy systems and devices that lack SNMP MIBs and the customization involved to get standards-based frameworks to address non-standard devices or environments is prohibitive.

MANAGING THE UNMANAGEABLE

Because there is no consistency across today's complex network



But each of these systems maintains a separate view — making it difficult, if not impossible to identify the root cause of a problem affecting multiple devices or protocol subsystems. For example, while Sprint would have preferred managing the IP network as one domain, scalability limitations of the HP OpenView platform required splitting the IP network into six separate domains.

Over two years ago, Sprint made a decision to implement a master management console that would eliminate redundant effort and allow technicians to get to the root cause of problems immediately.

After evaluating products, Sprint selected Boole & Babbage's (San Jose, Calif.) COMMAND/POST to act as a front-end to its element management systems, including HP OpenView, IBM NetView for AIX and NetView for MVS. For example, the HP OpenView systems now forward traps to COMMAND/POST, providing the ability to monitor all six OpenView domains from one vantage point — allowing Sprint to overcome OpenView's scalability limitations. In addition, Sprint has used COMMAND/POST to automate confirmation of HP OpenView traps, reducing the need to poll devices to confirm that received SNMP traps are valid.

COMMAND/POST was put into production use at Sprint over 18 months ago. Since that time, system availability was increased by 0.2 percent — and although the percentage appears small, it actually resulted in a savings of approximately \$2 million a year. Currently, COMMAND/POST consolidates the alert streams from element management systems managing over thousands of devices collectively. While failures have been extremely rare, when problems have occurred, COMMAND/POST has allowed Sprint to identify the root cause without wasting time. Boole and Babbage can be contacted at (800) 544-2152, or at www.boole.com.

— Jack Brown,
Contributing Author

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HP 3000: At The Center Of Catalog Central

Gerard Mulhaupt

La Camif, France's third largest mail-order company, serves 5 million customers with a selection of over 60,000 products including furniture, bedding, home electronics, appliances, clothing and specialty foods. Headquartered in Niort, near the Bordeaux region of France, La Camif has become an international company through acquiring subsidiaries in Portugal and the Czech republic. It has about 4,000 suppliers and service providers and approximately 1,900 employees including over 300 customer service operators.

The term mail-order is a somewhat outdated way of referring to La Camif's business, because its customers have a choice of ways from which to

buy. For those who prefer shopping in stores, La Camif offers general merchandise and home furnishings stores. In addition to multiple editions of a general catalog and 11 specialty mail-order catalogs, last year the firm published its first CD-ROM catalog.

Since 1983, customers have had the option of placing their orders online via the Minitel videotext system and currently about 36 percent of orders are placed electronically. La Camif expects an increase in online order processing as customers with access to personal computers begin to take advantage of its Web site which uses HTML to generate catalog pages on the fly. Beginning this spring, about 1,200 products are visible from the Web site.

Although La Camif is now a \$1 billion company, its computing environment has never included a mainframe. In its two computer rooms (IS protects data through mirrored disk arrays and redundant capacity), La Camif now has 11 HP 3000s, 5 HP 9000s and 15 Windows NT servers. The company has used HP 3000s since 1977 when it purchased its first HP 3000 Series II, and its staff has years of experience developing applications in the MPE/iX environment.

Over the past 19 years, they have added capacity to match growth. For example, the HP 3000 995/300 data warehouse recently got a processor upgrade and a fourth processor, making it an HP 3000 996/400, along with 2 GB of additional memory to accommodate growing



La Camif's headquarters campus. All aspects of the business, including manufacturing of the catalog, are conducted here.



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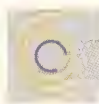
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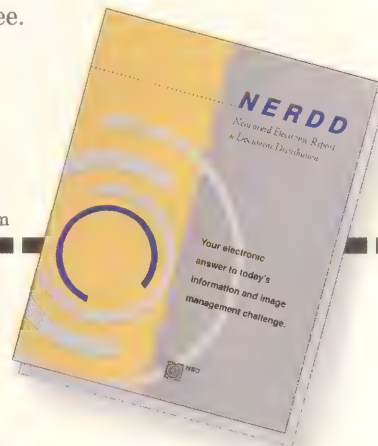
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CIRCLE 152 ON READER CARD

amounts of catalog data.

La Camif's computing strategy is to use HP 3000s whenever possible and integrate with other systems for the jobs it can't do alone. The data warehouse runs entirely on the HP 3000 with an Allbase/SQL database, as do core applications including accounts receivable, warehouse management, order processing and shipping. La Camif uses HP 9000s for applications that are available only on UNIX servers. Currently, these include applications for estimating, production control, warranty tracking and project management. They also run Ross Accounting software on the HP 9000, only because it was first available on the HP-UX platform.

The applications in which the HP 3000 and HP 9000 work together are the most complex and therefore interesting ones. In-house integrated computer-aided catalog publishing and a new dynamically generated Web-based catalog both fall in this category. For dynamic catalogue publishing with current pricing, they combine text from an IMAGE database on the HP 3000, the same one product managers create for the paper-based catalog.

One of the most demanding aspects of producing the catalog is handling the digitized photos they process in their own studios. Each of the 60,000



La Camif's headquarters in Niort, France.

items sold needs a photo. La Camif uses an HP 9000 Series 700 workstation to display the photos and plan the catalog page layouts. Layout artists working on a catalog page can pull an image from the HP 9000 and then associate the text that is extracted from the IMAGE database. They issued a competitive bid in order to choose a workstation which would have the highest quality screen definition and ended up selecting the HP 9000 Series 700 over the IBM RS/6000.

The same databases used to compose catalogs now do double duty for the prototype of the Web-based catalog. Last fall, the firm worked in partnership with Ilog, a French object-oriented software vendor, using their object-oriented component technology

to develop this prototype which stores both catalog data and customer profiles in an Oracle database. When a customer accesses the Web site, a profile is automatically retrieved.

As soon as the customer requests information about a product, an HTML page is created by extracting the catalog description from the

HP 3000, the photo from the Oracle database on HP 9000, and up-to-date pricing from another database on the HP 3000. Information about the customer's buying patterns is captured and stored so that object-oriented online help agents can suggest other purchases.


The HP 9000 is used as a Web server for the prototype system, but La Camif plans to use Windows NT servers for the production system. Many challenges await La Camif as it scales up its Web catalog to include most of its merchandise, but they do not expect connectivity between the HP 3000 and Windows NT servers to be one of them. They already have connectivity between these two systems because the office applications reside on Windows NT servers. Using Reflection and other connectivity products, product managers at PC workstations can access product data stored on the HP 3000 while working on shared office applications accessed via Windows NT servers.

Although catalogs and how they are produced have changed dramatically over the past few years, they are still the heart of La Camif's business. And, the HP 3000 remains the repository for its core catalog data whether it's used for market intelligence, for paper publishing or for dynamically-generated Web catalogs.

— Gerard Mulhaupt is manager of new technologies for La Camif.



La Camif staff processing mail orders through the HP 3000.



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Holy Grail

Printers are becoming more sophisticated and capable. Homogeneous networks are giving way to heterogeneous LANs comprising multiple network and server platform operating systems. The ultimate goal envisioned in vendor product literature is to create an integrated environment in which data can be accessed and output may be delivered on an any-to-any basis throughout the enterprise. However, this dream is widely viewed as the Holy Grail.

The increased attention to new architectures for information processing has not been accompanied by a commensurate attention to other important issues such as the management of print, fax and e-mail on a network or enterprisewide basis. The management of these output resources is just as important as the management of new distributed platforms and networks. In fact, the failure to manage output functions can impact the cost savings and efficiency of new architectures in unimagined ways.

Consider a simple — yet typical — example of a printer attached to a busy office LAN. End users direct multiple jobs to the printer queue, then wait for a response that the job has been printed. When the response doesn't come, the users submit the print job to the queue a second time. If the job does not print, alarms are raised to the network administrator. Before the problem can be rectified, however, several users have gathered around the printer, attempting to troubleshoot the problem. The printer is powered on and off several times. The changes in printer status confuse the queue, jobs are partially processed, then all printing stalls. The network administrator arrives, fields the criticisms and complaints of the staff, then resolves the problem. The result is printing delays combined with lost productivity and increased stress.

The above scenario is a simple example of an increasingly complex and difficult problem: network printing management.

In the absence of attention to network printing management, this technology area continues to be devoid of meaningful open standards and remains an arena for proprietary solutions fielded by vendors of printer products themselves. In turn, the lack of cooperative effort in developing standard methods to manage all network-attached printers and to control their

print queues intelligently has created a difficult situation for network and systems professionals seeking to realize the enterprise computing vision.

Almost everyone agrees that the problem of network printing management is important. However, analysts are quick to divide any

(continued on page 33)

Or

Holy Terror

Jon William Toigo

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NETWORK PRINTING

discussion of the issue into two parts: network printing management in the traditional LAN or desktop setting, and network printing management from the enterprise perspective. The LAN/desktop segment accounts for nearly 80 percent of laser printers sold to U.S. companies. It comprises businesses that are slowly interconnecting their LANs and are seeking to optimize printing resources across the combined LAN asset.

HP has arisen as the predominant printing vendor in the 8 to 25 pages per minute segment. HP maintains a lead and controls the market fairly well. Other vendors attempt to clone HP by cloning the PCL language, but HP stays ahead by introducing new versions.

Ed Pullen, analyst for Computer Intelligence/InfoCorp (Mountain View, Calif.), explains how efforts to standardize a means for managing network printing have fallen prey to vendor in-fighting. Pullen observes that standards were approved at the beginning of 1996 by the Desktop Management Task Force (DTMF), an organization of industry vendors and technology users, for a common printer Management Information Block (MIB) and a common printer Management Information File (MIF). The printer MIB/MIF would enable printers to report their status using standard SNMP network management utilities.

However, reports Pullen, "HP, by virtue of its installed base, dictates the standards. They participated in the DTMF to develop the printer MIB standard. Then, they wrote their own MIB that goes a tad beyond the standard MIB, giving non-standard information about their printers' features and functions, in order to retain their market leadership."

Why would a common MIB/MIF threaten HP's market share? According to Angele Boyd, analyst for International Data Corp. (IDC; Framingham, Mass.), "When all printers have a common MIB, they can all be controlled by the same network management system. That means that users are free to choose whatever printer product they prefer. HP will say that they participated in the DTMF and are working toward common standards. But that is

like Microsoft denying that they are pushing proprietary standards."

Linda North, HP's LaserJet Solutions (Boise, Idaho) product manager, asserts that the company has participated fully in the development of the MIB, "We helped develop the MIB, and we helped chair the printer workgroup, but we did not control it. At least 15 other companies brought in their own proposals at the meetings. What we came up with were definitions for over 100 mandatory objects defining capabilities and status of the reporting printer. Of course, not all printers could report the same features because of the capabilities and features on the printer itself. So, a common MIB will not result in the same amount of information from every printer."

While some observers see HP's involvement in the development of the printer MIB as a cover to conceal its agenda to create a proprietary network printing solution, spokespeople for HP regard critics as having a bad case of sour grapes. Said one product manager, "We have fully supported the standard. Whether or not others see it that way is not a priority for us. Our customers will continue to provide us with information on what kinds of [data] they need from their printers."

Bill Peisel, chief technology officer with Digital Products Inc. (Waltham, Mass.), adds that the printer MIB/MIF standard is not enough to manage network printing, "The MIB assumes that people will use SNMP to manage printers in the network. The fact is that fewer than 10 percent use SNMP network management systems to manage printers. Instead, they need a printer management program that will enable control over the printer by an end user or network administrator. There is no solution to this problem today and no one is working on developing a common platform for managing printers from different vendors."

NO STANDARD SOLUTIONS

IN THE ABSENCE of a common network printing management solution, many vendors are bundling printer

(continued on page 37)

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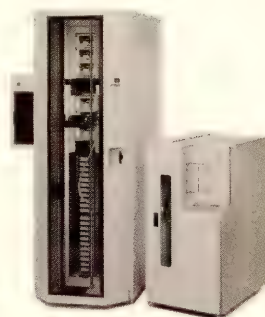


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CIRCLE 241 ON READER CARD



HP 3000 AND HP 9000: WE HAVE WAYS OF MAKING YOU TALK

The HP 3000 platform is widely regarded as a top-notch server for intranets and other enterprise distributed computing applications. Difficulties arise, however, when attempts are made to direct spoolfiles from the server to printers elsewhere in the network. Fortunately, several products have been developed to surmount this problem and to facilitate the printing of server-generated documents on any printer in the network.

One product, NP92 from MiniSoft Inc. (Snohomish, Wash.), installs on the HP 3000 where it operates as a background task. The product transparently spools output to network print destinations on the corporate network, handling carriage control conversions and supporting HP environment files and bannering. Using NP92, spoolfiles can be printed to printers with TCP/IP network interfaces, or they can be sent to Novell NetWare or other UNIX spoolers for inclusion in their print queue.

Transpooler from NSD Inc. (Pleasanton, Calif.) provides another spoolfile transfer option to facilitate the print integration between HP 3000 MPE and UNIX systems. Transpooler is implemented with HP OpenView OpenSpool on the HP 3000 to merge print queues from that server with those generated by UNIX hosts, LANs and other systems supporting the BSD protocol.

Another enhancement to HP 3000 printing comes from Quest Software's (Newport Beach, Calif.) NBSpool which provides spool management that will enable users to control output from the HP 3000 host and to direct it to any printing device on the network.

Quest Software's EnterPrint accomplishes the same task for the HP 9000 in the area of production printing on the network. The product installs on the server and provides transparent conversion for multiple output data streams, including PCL, AFP, LCDS and text, to drive industrial strength printers from the HP host. EnterPrint enables the HP 9000 to act as a print server for practically any application server in the network and is capable of being configured and controlled using a Microsoft Windows client interface.

YOU CAN'T GET THERE FROM HERE — OR CAN YOU?

Once all files that should be printed are translated to a form in which they can be read, the next trick is to get them to the right printer on the network. Load balancing, queue management and other data center printing concepts are difficult to translate to a distributed computing environment, where hosts and peripherals speak in a diversity of languages.

Graymatter Software's (Seattle, Wash.) ScriptServer Network Queue Management (NQM) product takes this issue to task and provides a brokering solution. ScriptServer NQM installs on a UNIX host (six UNIX OSes are supported) designated as a broker/print server, and provides a single point of contact for end users wishing to view and manage their print jobs from their client workstations. ScriptServer NQM will process the client print request and automatically select device drivers and filters to facilitate printing on any printer in a TCP/IP network.

ESPUL-Printpath from RAC Consulting (Olympia, Wash.) delivers an HP 3000 print solution that prints to TCP/IP interfaces such as HP JetDirect, supporting interfaces such as Intel, Milan, Emulex, Extended Systems and Lantronix. Bi-directional printing between the HP 3000 and HP-UX, Windows NT and Windows PCs is available via the LPD/LPR printing protocol.

Not every output from the desktops of the business world is intended for print. File transfers, e-mail and even faxes can now be launched from within many business applications using virtually the same techniques used to print documents.

When it comes to faxing on an enterprisewide basis, Omtool's (Salem, N.H.) Fax Sr. provides one solution. Fax Sr. is a family of network fax solutions designed around a client-server architecture enabling its use on a broad range of platforms. A Microsoft NT version of the product has just been added to a server list that includes OpenVMS and UNIX. Many popular desktop OSes are supported for installation of the Fax Sr. client application.

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CIRCLE 103 ON READER CARD

(continued from page 35)

control software with their printer products for use with platform-specific and network-specific operating systems. Some vendors suggest that the software adds value to the purchase.

According to Peisel and others, the problem with this situation is that "all solutions are proprietary and the end user is in trouble if there is a mixed vendor environment. HP's JetAdmin printer management software will only control HP printers, while Lexmark International's [Lexington, Ky.] MarkVision printer management utility won't work with Hewlett-Packard hardware."

IDC's Boyd points out that this situation is not likely to change soon. If a company uses printers from different vendors, says Boyd, "MIS will just have to learn different [printer control] products. Apparently, the problem has not exceeded the pain threshold of most users. They are content to run multiple printer control programs until printer control capabilities are integrated into the network or desktop operating system."

At least two vendors — HP and Lexmark International — have been doing just that: working to integrate their printer control utilities into such popular operating systems as Novell NetWare, IBM OS/2, and Microsoft

NETWORK PRINTING

Windows 95 and Windows NT Workstation 4.0. In 1995, HP announced "Operation Camouflage" — a strategic initiative to integrate its printer management software into the most widely used computing platforms. The company allied with Microsoft to integrate its JetAdmin package into the Windows 95 desktop and shipped the product with all CD-ROM editions of the OS. Subsequently, HP released a version of JetAdmin for IBM OS/2 LAN server, and announced a co-development effort with Novell on the NetWare Distributed Print Services (NDPS) component of its new NOS.

Rob Whittle, senior product manager for Printing at Novell (Provo, Utah), is pleased with the relationship with HP. "Our customers were complaining about having to run multiple utilities from several vendors to manage printing. We wanted to make it easy to print and to manage printers under Novell, so we came up with NDPS. NDPS calls consist of common application program interfaces (APIs) that vendors can write to. The APIs provide a gateway to translate printer vendor calls to NDPS and vice versa. All of it will be transparent to users, and ultimately we expect to write native to all vendor printers."

FROM LAN TO WAN

MOST OBSERVERS see the efforts to develop an operating system-based solution for network printing as an evolutionary step. However, few see it as a comprehensive solution for enterprise printing management in a mixed-network, mixed-server environment. Enterprise-strength printer management and control has a different mix of requirements than the desktop/LAN environment.

Says IDC's Boyd, "This is the high end of the market characterized by batch-intensive printing and long print runs. Because there are no global uniform standards for printing across platforms and networks, the safe decision is to select a solution that supports the widest variety of network operating

(continued on page 39)

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NETWORK PRINTING

systems and page description languages. If compatibility issues are important, select a product that supports multiple platform operating systems. That way, you can access printers on the main-frame, the midrange and on company networks. That kind of solution opens up print resources on an enterprisewide basis."

A DATA CENTER MODEL

THE PRACTICE OF enterprise print management is more closely consistent with the discipline of data center printing than traditional network print management. The three major vendors in this market are: IBM Printing Systems Co. (Boulder, Colo.) which offers the Printing Systems Manager (PSM) that extends data center printing solutions into the distributed environment; Dazel Inc. (Austin, Texas), which provides a family of products designed to provide a comprehensive output service solution; and the third solution, though yet

to be fielded, is Printxchange — the product of a partnership between Xerox (Rochester, N.Y.), Digital Equipment Corp. (Marlboro, Mass.) and SunSoft Inc. (Mountain View, Calif.).

According to Kerry Bensman, director of Software Solutions for IBM Printing Systems Co., all of the products listed above are an interpretation of the Palladium Reference Model, generated as part of the Athena Project sponsored by IBM, Digital and the Massachusetts Institute of Technology in the mid-1980s. But according to Bensman, the stimulus to develop enterprise solutions ignited during a "major movement of mission-critical applications to UNIX computers, where the print side is lacking.

"As companies migrated applications onto distributed platforms, they discovered that they still needed reports on people's desks each morning. They needed the type of predictability and manageability of printing that they enjoyed in a centralized environment.

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NETWORK PRINTING

They needed a way to move between postscript, PCL and ATF output types to support different printers." Users needed to know detailed information about printers, including type, tray and other features — especially with high-end printers where jobs can't be aborted in midstream without substantial cost. They needed to optimize LAN printers, which are moving faster than ever before. They needed enhanced management of the queue to prevent important work from being delayed by less important work. "And, it's surprising how much they needed security — you know, so that payroll doesn't print in the engineering department," says Bensman.

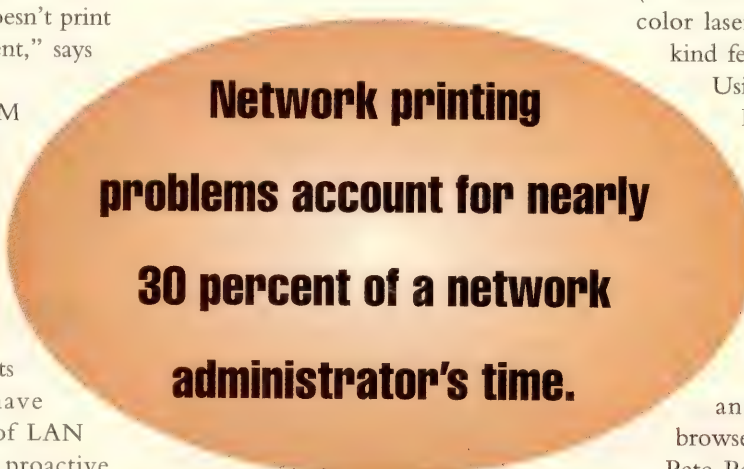
Bensman characterizes PSM as an "industrial strength solution." He points out that enterprise print management is key to reducing the real cost of printing: consumables such as toner, paper, administration and maintenance. He reports that internal studies have revealed that 14 percent of LAN cost is printing and that a proactive enterprise print management capability is the only way to reduce this cost.

"The problem we had with PSM," says John Kavazanjian, Xerox Production Systems Group vice president and general manager, whose company was seeking its own enterprise print management solution, "was that its code sat on top of the operating system. We wanted it to be embedded. IBM would not license the code originally, though they eventually licensed it to Hewlett-Packard. So we worked on developing an enterprise print management solution ourselves in cooperation with Digital and Sun. We have also worked with Novell and HP to ensure that the product will be supported by NDPS in their 4.0x release of NetWare. The first release of Printxchange is expected this September."

Kavazanjian describes Printxchange as having a simple architecture. It consists of a spooler, network interface, job queue, accounting spec and print supervisor spec. The front end will run on a server — initially a SunOS plat-

form — and the back end will run on the printer. Gateways will be written so that applications can submit jobs and so that data structures can be converted automatically to whatever the printer requires. "The whole product is extensible up and down so we can collect data from the mainframe JES administration facility and from Lexmark's MarkVision if necessary."

As vendors of printer products in the high-end segment of the market, some questions have been raised about the dedication to open standards in the



**Network printing
problems account for nearly
30 percent of a network
administrator's time.**

IBM and Xerox offerings. Kavazanjian explains that, unlike his competitors, "Xerox isn't in a quest to make money on Printxchange." He claims that the code will be licensed at a reasonable cost to run on UNIX and Microsoft NT servers.

Dazel, on the other hand, does not labor under the burden of suspicion about ulterior motives. Dazel is a suite of products including a UNIX-based output server (a Windows NT version is due out this year), a GUI client operating under Windows and Motif, a gateway that provides connectivity between platforms and networks to the server, and a software toolkit that enables customization of the products to the customer enterprise.

Using Dazel, a user with appropriate privileges can produce output and deliver it reliably — via a number of delivery options — anywhere in the enterprise. Unlike other solutions, Dazel receives solid cooperation from all equipment vendors and provides

APIs for integration with DCE and non-DCE environments as well as established client-server applications such as SAP. The company is currently looking to expand the reach of Dazel destinations to include devices and applications on the Internet.

PRINTERS AS WEB SERVERS

THE INTERNET MAY be a crowded place by the time Dazel arrives. In April, printer vendor Tektronix Inc. (Wilsonville, Ore.) began shipping a color laser printer with a first-of-its-kind feature: a built-in home page.

Using an integral HTML utility, PhaserLink, the Tektronix Phaser 550 printer is able to post a Web page on the company network. The Web page is used to publish current information about the printer's status and features in order to facilitate its management and use by anyone with a browser-equipped workstation.

Pete Peterson, president of Digital Products Inc., says, "Right now, the lock-in for printer vendors within companies is software. The emergence of a Web server-equipped printer will cancel that advantage. I predict that in one year, every vendor will offer the feature."

If the printer-qua-Web server does catch on, the issue of network printing management may become moot. The refinement of the Web page content or intelligent search routines run against printer Web pages may be able to gather all printer information into a unified printer management facility.

Until that happens, the quest for standards in network printing management may remain just another technological holy grail.

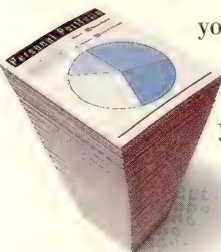
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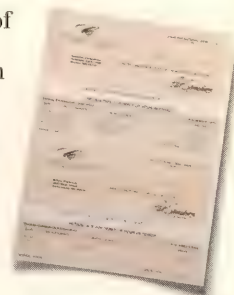
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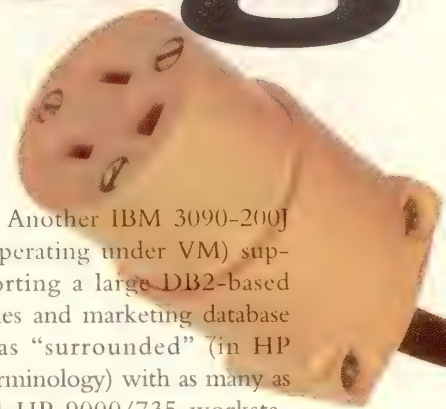
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Pullin' The Plug



They ate a hearty meal. They sang a silly song. They laughed a cocky laugh. And some of them danced while the band played on. Although you couldn't tell by plain observation, it was a funeral. But it was still an occasion for celebration. And the joint, at HP's Palo Alto headquarters, was definitely jumpin'. Think New Orleans minus the Dixie Land Band, but with a Silicon Valley rock and roll twist instead. On May 17, 1996, HP ceremoniously unplugged their last mainframe. And by doing so, they collectively celebrated the satisfaction that comes from knowing that you're as good as your own advice.

As recently as 1993, HP had six — count 'em — six mainframes. Like most large multinational corporations, they ran HP's bread-and-butter applications: order fulfillment and management, customer, product and pricing databases, decision support, payroll and human resources. In August 1994, the first of those mainframes got dumped: an IBM 3090-200J (running under MVS/ESA) that hosted OMNI, HP's order management system. Eight months after starting, several million lines of COBOL code (IMS/DB, DB2, CICS and QMF), supporting the former Computer Manufacturing Group (Colorado Springs, Colo.), were migrated to two HP 3000s and one HP 9000 Corporate Business Server.

Another IBM 3090-200J (operating under VM) supporting a large DB2-based sales and marketing database was "surrounded" (in HP terminology) with as many as 14 HP 9000/735 workstations. These were eventually consolidated onto four clustered Model T500s. But with a few more years of rehosting, re-engineering and consolidating applications behind

them — there was one left. After 40 years of mainframe co-dependency, a single mainframe stood between HP and mainframe-less independence. "It was ultimately the last in a line of machines that probably started with a Univac back in the 1950s," says Bob Walker, HP's CIO, who presided over the unplugging event. When it was all over, however, more than 30 mission-critical (mostly batch) applications were migrated (or rehosted as HP prefers to call it) from an Amdahl (MVS-compatible) mainframe in less than two years. But it wasn't exactly a planned execution. In other words, eliminating the mainframe at HP

(continued on page 45)

George A. Thompson

WALK THIS WAY, TALK THIS WAY

OK. HP is talking the talk. But after all, talk comes cheaply, especially in the computer industry where every "me too" product announced by a vendor is proclaimed as the next technological breakthrough. And by the way, just where is that walk that they're walking going — and by association, their customers? For some enlightenment, we asked Bob Walker, during an exclusive interview, to give us an inside HP perspective on some industry buzzwords and how HP technology works for HP.

► *What's your definition of open, distributed client-server computing?*

The notion of open, I view as primarily having economical connotations. Because of the intense competition [in the marketplace] and the ability to substitute that openness implies, there's a much lower price point. Openness may never achieve the dream we all have, where everything is completely interchangeable. But, you have at

least the ability to substitute with much less effort than in a proprietary mainframe one; and that really changes the economics dramatically. Our movement to HP platforms and our mainframe elimination can



HP's last mainframe gets its walking papers. With one final symbolic yank of the cord, HP CIO Bob Walker eliminates the last vestiges of HP's monolithic legacy.

be characterized as a move to embrace open computing. It's still big batch systems in a glass-walled room but at a much lower cost.

Besides the fact that it means in lots of different places, distributed also means it can ideally be managed from a remote place. The majority of our UNIX servers today are managed in places that are not in the same place as where they are physically. If you can get the power of the machine closer to someone or you can concentrate [the power of that] machine away from that user, you can lower the overall cost and [reduce the] administrative burden. We've done both of those things [with HP's PC COE and the intranet].

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based on a client-server architecture.

➤ *Would you classify your implementation as a three-tier architecture?*

Yes. It's our internal preference when we develop systems and our strong preference when we buy applications.

➤ *Can you describe the overall architecture?*

Our large integrated apps, what most people would describe as mission-critical applications — supporting finance, manufacturing, personnel and order fulfillment — are on HP-UX servers. For our LANs and for departmental file servers, it's Windows NT. If you have enough users in one place and can take advantage of the scalability of HP-UX, then that's our preferred choice. In a more isolated environment where you don't have as many users, NT can be a good choice.

➤ *What's your experience with Windows NT server?*

I think our NT experience is the world's NT experience: still very much in learn mode. I think we are where we were on UNIX a few years ago,

waiting for the tools. So, our NT server deployment is limited right now. As it grows, we'll learn the lessons the same as everyone else.

➤ *Are the COE desktops running Windows NT?*

No. Not yet. But the OS we are targeting for the desktop environment is Windows NT [Workstation].

➤ *What about Novell?*

We have a few cases where Novell networks have been deployed locally. And people are quite satisfied. But there aren't very many of them.

➤ *What's the role of the HP 3000?*

Although there are fewer systems, they are larger. And they are doing the lion's share of the work inside the company. All of our factories run our MRP applications on the 3000. However, application availability is far greater in the HP-UX environment. So as we go out and select applications, those are generally available on HP-UX rather than on the 3000. Most of our financial centers are moving toward an HP-UX solution, and virtually all of our business units have decided on a solution based on HP-UX. — GAT

(continued from page 43)

(which had been upgraded five times in four years) wasn't just an end, but rather a means to one.

The real story begins much before the May 17, 1996 celebration (the mainframe was officially unplugged on April 8, 1996). "As a long-time believer in [and proponent of] distributed, open systems, there are two themes we try to use in the execution of our IT tasks," says Walker. "First, is the need to operate IT efficiently; that is, at the lowest possible cost." Second, he says, "we need to make HP's business [processes] more effective." In fact, Walker calls eliminating HP's mainframe an "opportunistic cost move." As an example, Walker says many of HP's batch payroll applications cost less to run now. But it also allowed HP to move from a proprietary technology in the form of a mainframe and replace it with open systems technology in the form of HP systems." Given that perspective, the mainframe elimination was "just one milestone along the way."

The other milestones alluded to by

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THE PLUG

Walker, that culminated in HP's "Grand Unplugging," include HP's intranet and HP's PC desktop network (known inside HP as the PC Common Operating Environment, or PC COE). HP's intranet (read TCP/IP-based enterprisewide network) story began in 1989 when HP's IT department was looking for a replacement for an X.25 network. HP's COE, which began in 1990 as something HP called the "Infonet," was a "way of putting information out in repositories," says Walker. Together through the intranet and PC COE, HP was able to bring 78,000 employees onto its intranet within a month. And with 87,000 desktops in its intranet/COE loop, HP is touting it as the world's largest private network. Overall, HP is now computing to the tune of a classic client-server configuration consisting of 87,000 MS-DOS/Windows 3.1 desktops, 23,000 HP 9000 HP-UX work-

stations, 5,600 HP 9000 HP-UX servers, 6,000 portable PCs, 1,600 Web servers (based on HP 3000 and HP 9000), 800 HP 3000 MPE/iX systems and 4,000 terminals. And of course, 0 operational mainframes.

THE CULTURE CLUB

But this isn't just a story about replacing mainframes with client-server technology. It's also about its effect on HP's people. While the technological changes at HP were evolutionary, the cultural changes have been just the opposite. They have deeply touched the hearts and minds of HP's employees. As a result, the way employees get information and the way they use technology has changed — for the better. Referring to HP's intranet/PC COE combination, Walker simply says, "One big change was the replace-

ment of sending stuff to people." Or what he describes more technically as a "push distribution system."

You may not realize it, but if you work in a corporation of any size, much less one with over 100,000 employees like HP, you already know what it's like to be a victim of a push distribution system. As Walker explains, the problem with pushing information is that it doesn't get to you when you need it. More likely, "it gets to you when someone else thinks they want to send it to you. So, it either arrives too soon, and I probably lose it; or arrives too late, after I've already made a decision." Now with PC's COE for instance, HP employees "pull the information" stored on servers from a central location when they need it. "That's a fundamental shift.

"We started with policy sorts of manuals," recalls Walker. "Things we used to print up, shrink wrap and send

AND THEN THERE WERE NONE

Located in the data center of HP's Palo Alto, Calif. headquarters, 30-some mainframe applications had accumulated onto a lone MVS-compatible Amdahl 5990/1400. Among the last, but by no means least, of the applications remaining on that Amdahl machine was HP's enterprisewide order management system. Every customer order taken across the globe comes through HP's HEART system, as it is known inside HP (called COCHISE in Europe). But as HP went out preaching about a new world order for open, distributed, client-server computing, the Amdahl 5990/1400 became a quintessential symbol, and an embarrassing one at that, of the very monolithic monarchy that HP had been campaigning against over the last several years. But independence was close at hand.

However, for every declaration of independence, there's a particular breed of freedom fighter. In the arcane, esoteric world of multinational computer organizations it's a technical architecture manager (at least in HP's declaration). But instead of maneuvering battalions and dodging bullets, he is managing application teams and maneuvering megabytes of information and migrating lines of COBOL code. HP's technical architecture manager responsible for HP's mainframe elimination project, James A. Murphy (now manager of HP's Mainframe Alternative and Open Warehouse Programs) and his colleagues chose to dissolve their mainframe bonds.

CLOSER TO THE HEART

Working within what they called the "comfort zone" of the mainframe-based data center, Murphy's application group "owned" not only the HEART

system but HP's large (over 300 GB) sales and marketing data warehouse (known as WIN) and several other complementary apps. Because the two very large batch systems (with up to over 250 GB file transfers) that have been operating since 1968 and were run several times every day, the decision to migrate HEART/WIN from the mainframe was not an easy or simple one. But explains Murphy, "We knew we had to upgrade to a new top of the line mainframe or else spend \$6 million to \$7 million on mainframe hardware." Besides, Murphy's application group used up half of the mainframe's resources. But says Murphy, "If we were going to be the drivers, we had to take responsibility for making sure the solutions we came up with were useful for everyone else."

Everyone else included the additional HP application groups who were "owners" of smaller applications on the mainframe (like HP's worldwide customer support and payroll), as well as the data center personnel involved. Murphy's main objective, however, was to lower the data center costs. So, he says, "the solution focused on freezing the costs that the data center charged to the application teams." Murphy explains: "Because we saved on the hardware, [data center] real estate and the personnel, the anticipated cost savings funded what was to become known as HP's Mainframe Elimination Program (MEP). With the prospect of having to bear the brunt of



James Murphy managed HP's HEART transplant without missing a beat.

out to people. But, you didn't know if everyone was actually using the same release of the policy." Consequently, HP's corporate policy manuals and their updates are no longer printed and sent out via e-mail or through postal service. Now, updates are loaded each night, if necessary, and get distributed throughout the world. Users are alerted via an on-screen icon and then have access to the same release of the policy wherever they happen to be. "Once that was in place, we built other internal services on top of it."

For example, HP employees have access to product and pricing information as well as competitive research from their desktop. Another example, is HP's telephone directory. "There's one central update service and a interface that provides any number of sorts." Updates of HP's stock price also can be obtained. An especially invaluable service for HPers who regularly

check their stock options in their profit sharing plans. In addition, "there's a database of recommended places to stay in the area where we have preferred rates and maps." By giving employees more and better information, Walker says, "It helps us to realize the notion of the HP Way; that is allowing people to make decisions."

According to HP estimates, PC COE initially saved the company \$10 million. And HP expects to reap another \$25 million to \$30 million annually thereby satisfying the first of Walker's two IT themes. "But more importantly, we have a much more reliable environment; one that has a lot more automation." According to HP's estimates, nine months after COE was launched, internal support calls for PC configuration problems went down by almost 100 percent, and calls related to software support decreased by 70 percent. That follows Walker's second theme: making

business processes more effective.

Although centralized management has taken some of the personal out of personal computing for HP employees, HP's IT can ensure that all desktop PC users are using the same databases, tools and information. Walker says that PC COE has been so successful that most people can no longer remember how to load applications onto a PC from a disk. The end result, according to Walker, is that people don't get entangled with the technology, "they just have to be knowledgeable about the information they want to have and how to make use of it." The COE also proved to be beneficial to those working to eliminate HP's last mainframe (see *And Then There Were None* sidebar). The application teams worked with the COE team on standardizing WinSock APIs and identifying remote procedure calls (RPC). But most importantly, "the COE gave me a common client target to deliver my soft-

the cost of keeping the mainframe, the others decided it might be a good idea to follow. It had a rolling snowball effect. But that's not to imply that it necessarily got easier after that."

MOLD A NEW MENTALITY

With so many applications on the mainframe, Murphy confesses that one of their biggest fears was "making sure we contacted everybody who might have had something running on this thing." Keeping the users in mind when naming the project, Murphy says, "we didn't want to use euphemisms that might confuse people about our objectives. We wanted them to know that the mainframe was going away." So, MEP was the working name they started with [back in January 1994]. "After that we didn't come up with anything clever, so the name just stuck." Interestingly, MEP wasn't considered a strategic project for IT. "It was considered an infrastructure project. We were [migrating] the applications as they existed and not doing a major business re-engineering."

According to Murphy, with a migration that involved migrating to HP 3000 MPE/iX and HP 9000 HP-UX platforms, the next biggest single driver was determining the expertise available on the application team. "Did we have to train the whole team in UNIX? Did we have some good UNIX experts on a particular team? What's the life span of the applications?" "Fears about the adaptability of mainframe programmers, that they 'wouldn't move away from their MVS comfort zone' proved unfounded. In fact, says Murphy, the team was eager to learn UNIX and update their skills. So "there was a pull to learn the UNIX environment."

According to Murphy, the learning curve wasn't all that great. After eight to 10 days of training per tool, he estimated that within two months the programmers' skill set was 80 percent to 85 percent of where they were in mainframe world. "It's only when interfacing with operating systems and utilities that the new skills really came into play." Besides, Murphy maintains that because the MVS programmers "already know how your business runs and they know what it takes to maintain the application, it's easier to have them learn UNIX. But taking UNIX programmers and training them to maintain systems that have to up around the clock was much more difficult."

With HP's revenues growing at 33 percent the last two years, eliminating HP's last mainframe was anything but a cake walk. In fact, it was more like a sprint where the finish line keeps moving further and further away. The only setback occurred in 1995 when HP's increasing success stalled the migration efforts. At the time, Murphy's team couldn't possibly have anticipated that HP's fiscal 1995 orders would grow by 25 percent. But as they were working on the order fulfillment system, they were certainly aware that the capacity of the Amdahl system was being exceeded much more quickly than planned. "We actually had to move people off the MEP project, and temporarily back to the mainframe side, so that the programmer could modify the code so the mainframe could run more efficiently. That cost us a few months."

But then on April 8, 1996, a little more than two years after the not-so-cleverly named, but nevertheless cleverly implemented, Mainframe Elimination Program was started — there were none. With over 2 million lines of COBOL code behind them, it was the day the mainframe died. And HP won their independence. — GAT

THE PLUG

ware," says James A. Murphy, HP technical architecture manager for HP's Mainframe Elimination Program (MEP).

Without the mainframe SNA-based network, HP's intranet now runs 10 to 20 times faster. "That refers to file transfer capability," says Walker. "There's a need to move information around ever faster." Walker admits that even at the world's number three computer company, "e-mail messages took awhile to transverse the network." Now, he says, "between any two points in the HP world, our delivery time is five minutes or less." He notes that within the HP campus, a real-time conversation is possible via e-mail. Technologically speaking, Walker says "we have relatively fat clients (486- or Pentium-based Vectras running DOS/Windows 3.1 with plenty of hard disk for caching), but we don't have the administrative burden on the individual user that exists in the traditional PC environment." About 10 percent of HP's sales reps, who all have

AFTER SHOCK It's hard to argue with the results of HP's MEP:

- \$8 million annual savings on mainframe maintenance costs
- a 63 percent reduction in time to process orders
- a 41 percent reduction in the cost to fulfill orders
- a reduction in mainframe IT staff from 30 to 14

laptop PCs, have the flexibility to work from home or from the road

Like every computer vendor, HP has talked the open, distributed, client-server talk while still walking in the shadow of

the mainframe. Now with uncharacteristic bravado, it's proudly (but still softly) walking the straight and narrow on the open systems path. Few vendors, if any, can make that claim. And it's bringing a \$33 billion stick to the party. It's great copy for a press release, but the story goes beyond sheer technological boasting. There are no geeks of the week here. No pocket-protected programmers on a power trip. In the true corporate spirit inspired by the "HP Way," Walker takes no particular personal credit for HP's IT achievements. "Many people did great work on it across many levels of the organization. There were no singular champions. If it made sense, it was championed by lots of people and was [eventually] accepted because it was good stuff. If it doesn't make sense, it doesn't matter who at HP is behind it." Walker simply summarizes it this way: you just need to have solutions and tools that make sense.

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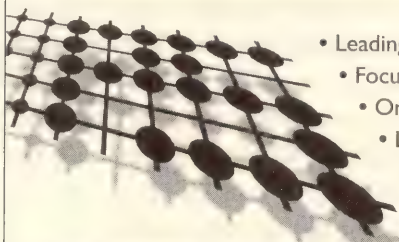
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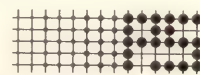
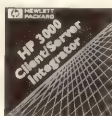
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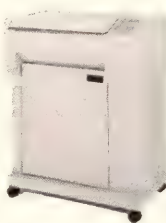
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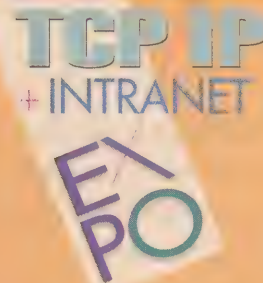
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(continued from page 9)

HP's own UNIX-based Windows Application Server solution, the Pentium-based HP 500 running SCO UNIX. "As more and more of our customers switch to NT, they can choose an NT version of the Windows Application Server tightly coupled with our environment," says K.C. Chavda, marketing manager for HP's Panacom Automation Division.

The HP 500 supports Windows 3.1 and Win 32s applications, whereas NTRIGUE also supports Windows 95 and Windows NT applications.

NTRIGUE 3.0, which is expected in October 1996, will include support for HP-UX workstation and Envizex X Station disk drives, Enware support and X Station bootups from NTRIGUE servers. Chavada notes that HP will sell NTRIGUE in North America and Asia-Pacific through Insignia Solutions and directly via HP in Europe.

In a related announcement, HP also upgraded the HP 500 with a 200 MHz

Pentium Pro CPU, which HP claims will deliver 66 MHz 486 performance for each user.

60% OF HP-UX CUSTOMERS WILL NEED UNIX/WINDOWS NT TRAINING BEFORE 1998

That fact was recently revealed in an HP study. The survey also showed that "80 percent of the respondents were either considering implementing or had adopted Microsoft NT," says Dave Deasy, education services manager with HP's Professional Services Organization. So, HP has begun offering regularly scheduled UNIX/Windows NT integration educational workshops. Some of the topics covered during the three-day workshop (\$1,795 per student) include the levels of integration possible among the OSes, applications and third-party products, UNIX, Windows NT and NetWare interoperability, as well as hands-on

experience using preconfigured clients.

The workshops are now being conducted worldwide. Call (800) 472-5277 for more information.

HP GAINING FAST ON COMPAQ

According to the research firm Summit Strategies (Boston, Mass.), Compaq considers HP its number one adversary in the PC server market. In fact, Compaq ranks its top three competitors as HP, HP and you guessed it HP. HP, already the number three in the Intel-based server market, will only get stronger, especially in corporate enterprise markets, because it has finally blended its once disparate RISC (CSO) and PC groups (PPG). The cooperative efforts are paying off with integrated HP 9000/HP-UX and Intel/Windows NT solutions. This year, Summit predicts that HP is not only likely to further cut into Compaq's market share, but will also pull ahead of IBM.

HIGH-TECH TRIVIA

In case you missed it, below are the Top 10 questions from the Computer Museum's 1996 Computer Bowl.

1. *Toy Story* was the first full-length feature film to be completely computer-generated. Its director, John Lasseter, won an Oscar for a previous computer-generated short film. What was it called?

2. Which is not the name of a real Web site — *The House of Scared Squirrels*, *The Bureau of Mission Socks*, or *Wombats Who Speak Esperanto*?

3. Whose new portrait is a composite of 75 women's faces created on a computer?

4. What was the internal code name for the Netscape 1.2 Internet browser — Cheddar, Brie or Provolone?

5. What is the trendy term on the Internet these days that is a Sanskrit word meaning "the visible form that the gods take on earth" — "agent," "avatar" or "java"?

6. One of the earliest forms of mechanical information storage was an ancient Peruvian device consisting of a cord with knotted strings of various colors attached, used for recording events and keeping accounts, etc. Was that device called a "quipu," an "atahualpa" or a "picchu"?

7. Programmers sometimes embed little surprises in their programs which are activated by pressing unusual key combinations. What is the term for these little inside jokes?

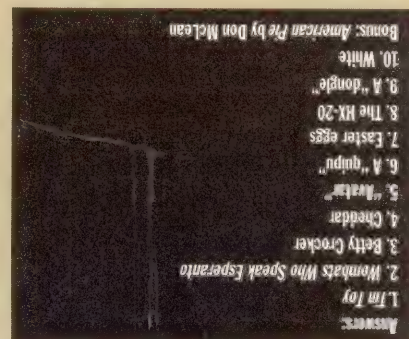
8. The laptop computer is 15 years old this year. Epson America introduced the first laptop in 1981. What was its model number?

9. What's the slang term for a security device that must be plugged into a computer's serial or parallel port before certain software will operate?

10. What color were the main tents at the Microsoft Windows 95 launch in Redmond last summer?

BONUS QUESTION

for *HP Professional* readers: What 1960s folk rock song did HP alter the lyrics to for its HP Mainframe Unplugging theme song? Who sang the original song?



The Symantec Enterprise Alliance Program



**Greg
McMurdie**

Whether it's the mainframe age with its single homogeneous platform or the client-server age with its multivendor, multiplatform enterprise networks, the challenge for corporate sites has always been about maximizing computing power, preserving initial investments in hardware and software, and, of course, controlling costs. Although companies can now buy almost any software product without enlisting the help of a consultant or VAR, the value-added channel is still thriving. And the members of Symantec Corp.'s (Cupertino, Calif.) Enterprise Alliance Program (EAP) are a perfect example of why.

The Enterprise Alliance Program, like many other vendor certification programs, requires member training and minimum sales figures, and provides incentive pricing and marketing assistance. EAP, however, focuses solely on providing business computing solutions in the open enterprise. Although EAP members have access to Symantec's full Norton Network Series, they do not simply push the products as a "package deal." Rather, EAP members use the Norton Network Series as the basis for enterprisewide business computing solutions. As such, products like Norton Administrator Suite, Norton Antivirus or pcANYWHERE are the means to the end — not the reason for the relationship.

"When we enter a partnership, we carefully assesses the benefit to all parties involved," said Gary McFelia, director of Professional Services at NETLAN (New York, N.Y.), one of the initial members of EAP. NETLAN works closely with clients and vendors like Symantec to deliver systems management solutions with an eye on value and client satisfaction."

One tool available to help EAP members deliver valuable enterprise network-

ing solutions is Symantec's new Norton Administrator Suite—Essential Edition. The Suite gives EAP members a set of integrated tools that provide centralized control and an unparalleled range of network administrative functions. Capabilities such as hardware and software inventory, software metering, software distribution, desktop virus protection, desktop configuration management and remote control, allow the EAP member to deliver and support business computing solutions.

"Norton Antivirus meets a growing need as virus occurrence increases, touch-

ing virtually every company. The Norton Administrator Suite gives us a firm grasp on customer's hardware and software assets in addition to powerful software distribution and license metering functions," says Dan Rodgers, regional director of East Coast services at DBSS, a nationwide VAR and EAP member.

Norton Administrator Suite is based on four key design cornerstones that are regularly requested by customers: heterogeneous support for multiple network and client operating systems; scalable architecture to support LANs or

see Alliance on next page

HP And Uniplex: An Ongoing Partnership



**Kathy
O'Neil**

In April 1996, Uniplex Software and Hewlett-Packard announced a strategic alliance. But with so many companies announcing strategic alliances of one sort or another, what else is new?

What's new is that this alliance focuses on integrating HP's OpenMail, an enterprisewide messaging system, and Uniplex's onGO Document Management System (DMS), an enterprisewide document management solution. By partnering with Uniplex, HP has positioned OpenMail as a part of an enterprisewide document management solution. In return, Uniplex gains a powerful partner who has the same target market — companies requiring manageable, high-end enterprise systems with 100 percent up-time.

HP and Uniplex are already inherently compatible because previous rela-

tionships between the two companies focused on the porting of OpenMail to other vendor's platforms not originally supported by HP such as Pyramid, NCR and Data General as well as extending OpenMail systems with Uniplex's onGO Office product. Consequently, onGO DMS is the only enterprise document management product that is integrated with the OpenMail directory, creating a powerful groupware solution for managing all forms of information — without incurring the cost of maintaining multiple directories.

As a second-source technology provider for OpenMail, Uniplex engineers work closely with HP engineers in their OpenMail porting efforts and ensure that onGO is optimized for OpenMail. In fact, Uniplex has already been named an OpenMail Gold Partner by HP's recently announced Enterprise Messaging Operation Partnership Program. And HP will localize and

see OnGOing on next page

Alliance

continued from previous page

WANs; visual and functional integration between the product components; and support for open industry standards. The Norton Administrator Suite enables EAP members to provide complete solutions including network hardware, software, services and support. As solution providers, EAP members work closely with Symantec and with customers. For HP customers, the tight integration between HP OpenView and Norton Administrator Suite provide various capabilities. For example, without leaving the OpenView console, managers have access to all the inventory, distribution and metering functions of Norton Administrator for Networks (NAN). The two products share the same inventory database — a task performed by OpenView is automatically recorded in the database.

Consultants can use Norton Administrator Suite's inventory capabilities to find machines that don't have anti-virus software installed and then use its distribution to install Norton Antivirus software and future virus definition updates.

Members of EAP include some of the leading vertical, horizontal and platform-specific VARs in the country, focusing on a wide range of customer needs across a variety of platforms and

operating systems. By combining the talents of consulting partners, the standard channel and strategic integrators, EAP established the infrastructure nec-

Ongoing

continued from previous page

resell a Korean version of onGO DMS (which may be available by the time you read this), as a standalone version as well as bundling it with OpenMail.

The document management market is a new and rapidly growing sector, one which HP can add significant value to via software, as well as with the client and server hardware. For example, document references in OpenMail are represented by icons that, when clicked on, take the user directly to the source document itself, without requiring the user to exit the OpenMail application. Also, routing and notifications of document references within the onGO document management system can be sent directly to the OpenMail user's In Tray.

Uniplex's relationship with HP is based in its UNIX messaging-based origins. Because of its e-mail origins, onGO DMS was designed from the start with messaging in mind. Therefore, Uniplex has an advantage over other document management products when providing solutions to OpenMail users. A key differentiator for onGO DMS is its support for version and revision con-

trol, ensuring that only the most current approved version of a document is published — even as revisions to the document are taking place.

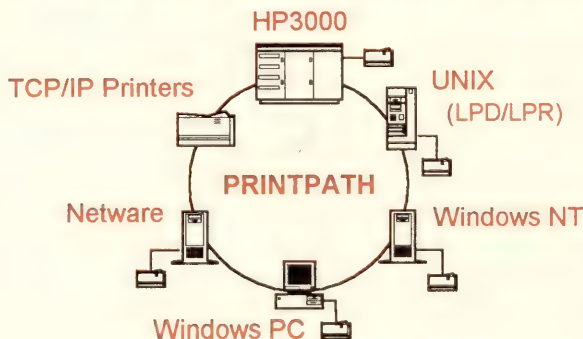
Because many organizations have a Web site, this functionality is proving necessary, not only in controlling the publishing and updating of documents within a company but now controlling the publishing and updating of documents on a Web site. DMS allows users to view Web site documents through any Web browser, automatically converting documents to HTML or directly passing PDF documents to the browser.

To ensure the new alliance will prove to be a vital asset for both companies, the Uniplex and HP sales organizations are working together to provide a complete and integrated package for customers, ensuring an easy-to-use, integrated and complementary enterprise document management and messaging solution.

For more information about the HP-Uniplex partnership, contact Uniplex at (800) 356-8063 in the U.S., 44 1442 230330 in the U.K. or visit <http://www.uniplex.com>.

—Kathy O'Neil is a marketing manager at Uniplex Software (Irving, Texas).

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CIRCLE 451 ON READER CARD

Navigating The Channel



Charlie Simpson

Most vendors, integrators, analysts and other market players have realized the benefits of the Channel program for vendors and in particular for HP. Due to a redefining of responsibilities, there may be few less Tauruses on the road today; although Lew Platt

refuses to give his up. But that's just the tip of the reduction iceberg. HP has saved on training and staffing costs, as well as systems and processing expenses by distributing products through its massive reseller's Channel program.

But what do these savings mean to the average user? Is there a reduction in quality? In service? To the contrary, according to Clark Straw, general manager for HP's Worldwide Partners and Channel Programs. In an exclusive interview with *HP Professional*, Straw explains how the user benefits from the Channel.

HP Professional: How does an average end user benefit from using HP's Channel?

Straw: The channel is an extension of HP's salesforce. HP's Channel is not just a delivery network or order fulfillment. It can reach and service difficult areas. Each reseller or partner must provide an added product or service. HP looks for a unique value. We try to avoid Channel conflict. In addition, the Channel must make an investment in training.

HP Professional: What are some of the "Value Adds" the Channel delivers?

Straw: Many partners bring in hardware systems that HP may not be able to provide. The vendor then installs, wires or networks the systems more cost effectively than HP may be able to do. Or the channel partner may be an application vendor that adds its own application software to HP hardware. Or it may be a consultant or integrator who can implement an HP solution.

Currently, however, there are no levels of distinction within the Channel ranks.

HP Professional: What are some of the latest developments in the worldwide Channels program?

Straw: Some new developments for

HP's Channel include increased services to its vendors such as access to HP's tools and services for both resellers and their customers. In fact, my position of general manager for

See Navigating on next page

Tuning HP's Partnerships



Feyzi Fatehi

every day it seems one company or another is announcing a partnership or strategic alliance. Every company these days wants to be seen as a "friendly competitor." Or to use the term first coined by Ray Noorda, former

CEO of Novell, it's a game of co-opetition. Nevertheless, despite the fact that partnerships and strategic alliances have very much become a way of life in the IT industry, "they are neither natural, nor easy things to do," according to Lew Platt, HP's president and CEO.

Most companies find it hard enough to relate across their internal organizational boundaries, let alone to try to relate across the boundaries of two or more companies. However, during the past 10 years, most successful companies have returned to their core competencies, or areas of developed or acquired expertise, that provide them with some competitive advantage in the marketplace. However, to meet the growing diversity of customer needs, companies seek alliances and partnerships to supplement their core offerings. In other words, the era of DEC's and IBM's who tried to be all things to all customers, is over.

Because vendors and their PR machines use the word strategic alliance and partnership rather loosely, it's a good idea to define them, at least in HP terms. The term "strategic

alliance" usually refers to the partnerships that require significant technology transfer and sharing of core competencies as well as significant joint investments that may expand from product design to manufacturing, and sometimes even to sales and marketing. In contrast, "partnerships" usually do not require significant technology transfer, but focus on product compatibility and creating bundles of superior solutions for the target customers. For example, HP's obsolescence of many of its own vertically-integrated software application products and moving to a horizontally-integrated business model of working very closely with a host of Independent Software Vendors (ISV) whose core competency is software and applications development.

CHANNEL YOUR SYNERGY

Understanding channel dynamics is a major key to understanding the different dimensions of channel partnerships. Depending on the context, the word "channels" often refers to all of the activities following the manufacturing of the product. In other words, the channel begins where the production line ends. Finished goods inventory, order processing and fulfillment, extension of credit and financing, as well as lead generation and qualification, pre-sales support, integration and installation are all part of the channel-related activities. Channels can then be divided into direct and indirect channels.

The direct category is a sales and distribution channel owned by the

See Partnerships on next page

Partnerships

continued from previous page

product manufacturer. It may include a field salesforce, telesales or a combination of the two. Traditionally, an HP direct sales representative would initiate the sales cycle by approaching a client, and eventually sign the sales order that would complete the sale and would result in the products being shipped directly to the customer. In the HP scheme of things, indirect channel members are called Channel Partners. HP Channel Partners therefore consist of third-party vendors that take over one or more of the channel-related activities. Channel Partners may provide warehousing, initiating and closing the sale, order processing, extension of credit, shipping, as well as installation, integration and training.

Interestingly, the same driving forces that are behind product and technology partnerships, are also driving and directing channel partnerships. The two specific trends accelerating the shift from mostly direct to mostly indirect chan-

nels are: the phenomenal growth of the computer industry as measured by the number of units shipped and the number of clients; and the phenomenal drop in price and therefore tremendous pressures to increase efficiencies and streamline costs. On one hand, Channel Partners increase the size of the market and the exposure of a manufacturer's product to its target audience by acting as a virtual direct salesforce for the manufacturer. On the other hand, because their core competence focuses on specific elements of the total channel value-chain, their specialization provides them with higher levels of efficiencies and lower costs that a large manufacturer (like HP) — whose core competence is making complex computing systems — may not be able to attain.

**During the past
five years, HP has
re-engineered its
direct salesforce
to complement its
Channel Partner
franchise.**

That's why during the past five years, HP has re-engineered its direct salesforce to complement its Channel Partner franchise. Besides continually increasing the productivity of its direct salesforce, HP has evolved their mission to aim at developing relationships and enhancing the visibility of HP's products and solutions within the largest national and global accounts. The actual sales and fulfillment of the products are increasingly becoming more synergistic with the indirect channel than ever before. Additionally, HP's field salesforce is responsible for developing and fostering relationships with the best-in-class members of product and channel partners leading to a greater degree of affinity and mindshare for HP within these companies.

Navigating

continued from previous page

HP's Worldwide Partners and Channel Programs was newly created to help increase the service and support given to the vendors."

ON THE UNIX side of the shop, HP's channel sells about 45 percent of the companies servers and 50 percent of the workstations. However, Straw quickly points out 80 percent to 90 percent of the business HP does itself is "leveraged through an independent software vendor (ISV), who provides an application." For example, SAP doesn't resell HP systems but their application heavily influences the sale of HP hardware.

Of course, not everyone is always pleased with the result of the channels. For some, it is viewed as an unnecessary evil — in particular HP 3000 users. Many HP 3000 users complain of a lack

of applications, or of the rate at which applications are made available for their systems versus the HP 9000. Although not blaming the channel, Harry Sterling, general manager of the Commercial Systems Division, explains that HP is often locked into or out of the applications it develops for its systems, based on what the partners will or will not support. And because most integrators and other partners support "open" computing applications, in other words multiplatform/UNIX applications, HP goes where the support will be first.



**Clark Straw, GM for HP's
Worldwide Partners and
Channel Programs**

HP not only leverages the Channel, the Channel leverages itself. Straw says that HP has been a "marriage broker" of sorts linking one hardware vendor with a systems integrator within what Straw calls the value chain. HP's future holds Internet and Windows NT activity. Straw maintains both endeavors will rely on HP's partners to help "tune" HP's offerings.

— Charlie Simpson, Editor-in-Chief

OPPORTUNITY OR THREAT

Some users express concern about buying from the indirect channel because they have questions about the proficiency and competency of the channel partners regarding the manufacturer's products. However, the availability of several channels with a spectrum of experiences and competencies enable users to benefit from a more competitive environment and a wider choice of options.

For both products and services, users have access to multiple sources for almost any required solution. Most users who buy from the indirect channel select a core reseller who can provide the best mix of products, services and expertise, in most cases, and develop a long-term relationship with them. However, they also unbundle some elements of the value chain and work with other alternative sources where and when the core reseller is not in a position of providing the user with a value proposition regarding those elements. This way, the user is in the driver seat and can ensure that their orga-

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Partnerships

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nization gets the optimum overall value from the channels value chain.

With the acceleration of the product introductions and improvement rates, a critical user requirement is to buy products only when they need them, not ordering today's products for a distant future delivery. Many resellers working with industrial and value-added distributors increasingly outperform vendors to provide fast delivery and corresponding services and support. Additionally, for totally commoditized components, resellers often carry and can propose alternative products, so that the availability of a commodity component, does not jeopardize the timely completion of a total solution. This advantage by itself adds significantly to the resilience of the customers procurement process.

Generally, indirect channels are more efficient and hence more cost-effective than direct sales. Therefore, they can offer equal or more attractive deals than vendors. However, with rapid rates of price-performance improvements, the initial purchase price is significantly overshadowed by the recurring costs of ownership such as support and maintenance. This applies most specifically to servers and systems-level components such as the network and databases.

Unlike individual and desktop systems, servers and their associated environment have to frequently evolve by adding extensions and upgrades, and therefore mandate a higher level of maintenance and support. Additionally, users have long realized that service and support are a highly localized activity with limited global scale effects. Therefore, the indirect channel is in an excellent position to provide equal or even better support at an equal or more attractive cost to the end users than the product manufacturer.

THE EMERGING HYBRID CHANNEL TREND

HP often uses a diversified channel strategy that can involve two or more channels. Particularly for complex sales,

where a solution approach is required, HP has advocated the use of hybrid channels. Hybrid channels are those in which different channel members perform specific tasks and functions within the same marketing, sales, implementation and support cycle. This is particularly applicable in distributed networked environments, where diverse technologies are brought together and different range of expertise is required. For instance, HP may bring in a systems integrator (SI) to lead the design and implementation of an enterprise client-server solution for a customer.

The SI may decide that a certain RDBMS is essential for the solution and

involve a direct sales representative from the database vendor to work with the SI. The customer and the SI then decide on the application that would reside on top of the database. The application vendor may happen to be an independent software vendor (ISV), in that case, the ISV sales rep sells the application in tandem with the HP sales rep who sells the HP systems. Or, if the application vendor happens to be an HP Channel Partner (VAR), they can sell the HP systems in addition to their own application. But post-sales technical support and maintenance may be outsourced to an authorized local support company.

For the customer, its an HP-centric

WHO'S WHO IN THE CHANNEL

With indirect versus direct, distributors, OEMs and resellers, where do you begin? In the following HP Sales and Distribution Channels glossary, Feyzi Fatehi, manager of the worldwide VAR program at HP's General Systems division, defines the terms you may be confronted with when entering HP's channels.

Direct Channel — HP's worldwide outbound field sales entities as well as its telemarketing and Professional Services Organizations, responsible to provide HP products and associated services directly to the customers.

Indirect Channel — All non-HP owned companies that are involved in the supply-chain of providing HP products and/or services to the end-user customers. A channel is composed of a group of companies that have a similar business model, sell similar products and services to a similar customer set.

System Integrator (SI) — A company that supplies custom or stan-

dard solutions or services for specific projects. SIs may or may not resell HP hardware.

Value-Added Reseller (VAR) — A company that buys products from HP, adds significant value — usually through their own developed software — and independently resells a total solution to end-user customers with limited assistance from HP.

Distributor — A first-tier reseller whose added value is in the form of facilitating the distribution of HP computer systems to HP-authorized second tier resellers. They do not sell directly to end users.

Distributor Authorized Reseller (DAR) — A value-added reseller who purchases HP products from an HP distributor and resells them to end-user customers with limited assistance from HP.

Two-Tier Channel — A sales channel in which HP equipment is sold to end-

environment. For HP and its partners, it's a chance to focus resources on what each does best to produce the optimum solution for the customer. A simpler instance of emerging hybrid channels, is the alliance of Product Partners (i.e. ISVs) with Channel Partners (e.g. VARs, DARs) who provide complementary products and services. In this scenario, HP does not directly get involved in the sales process, but does play a key role in providing the common meeting ground to facilitate the formation of such alliances.

—Feyzi Fatehi manages the worldwide Value-Added Resellers (VAR) program at HP's General Systems Division.

user customers by a reseller (DAR) who purchases HP products from a distributor.

Specialized Account Reseller (SAR)

— An HP-authorized reseller who purchases products either directly from HP (in Europe) or from an HP distributor (in the United States) for resale into specific named accounts. SARs are classified either as Corporate Resellers (CR) or Small Disadvantaged Businesses (SDB).

Original Equipment

Manufacturer (OEM) — A reseller who buys products directly from HP, acts independently from HP, receives no marketing or selling assistance, typically private labels HP products, and sells them into well-defined niche markets such as specific application or geographic segments.

—Feyzi Fatehi manages the worldwide Value-Added Resellers (VAR) program at HP's General Systems Division.



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**Editor's Note:**

Due to overwhelming popularity, this month we feature a special edition of Fred Mallett's UNIX At Large column. This is part one of two explaining the startup file sequence for HP-UX 10.10. Also check out Fred's column on pax on page 66.

Start Me Up — Part 1

After the number of calls I've received lately requesting an explanation of the startup file

sequence in HP-UX 10.10, it seems appropriate to wander down that road.

Although different from HP-UX 9.x (and previously), the flow is rather simple. In fact, there are just a couple of areas that are a problem. There's plenty of disinformation out there about file naming and program content, so we'll try to clear up that confusion too. Therefore, this will be a two-part column: this month, we'll look at the general flow of the rc files and the commands involved. Next month, we'll create an addition to the rc files, and look at what conditional flow must be in an rc script for it to work properly.

There are five components in the HP-UX Run Control (rc) startup flow. They are briefly described below, in order of use during boot up. Next, we'll re-examine each step in more detail. The boot program invokes:

1. **/sbin/init**

/sbin/init reads the **/etc/inittab** file to determine the default run level at boot time, as well as other programs that it must run. If **init** was invoked from the command line, a run level was supplied as an argument. **/sbin/init** then invokes **/sbin/rc**.

2. **/sbin/rc**

Note, that there is no **/etc/rc**, it is now **/sbin/rc**. **rc** is the sequencer script, and handles all the work of running the scripts needed to change run levels.

3. **/etc/rc.config**

/sbin/rc sources the **/etc/rc.config** script.

4. **/etc/rc.config.d/***

/etc/rc.config sources all the files in **/etc/rc.config.d** with appropriate names, these are files that only have variable assignments in them.

5. **/sbin/rc?.d/*** and **/sbin/init.d**

Next, **/sbin/rc** sources all scripts in **/sbin/init.d** that have appropriately named links to them, from the **/sbin/rc?.d** directories. The naming convention is that the **?** means that the run level is being changed to a number between 0 and 6, and the links to the **init.d** scripts are named based on the order they should be executed in. For example, the script **/sbin/init.d/dtlogin.rc** has two links to it — **/sbin/rc3.d/S990dtlogin.rc** and **/sbin/rc2.d/K100dtlogin.rc**. The **S** means start script, the **K** means kill script. The number is used to establish the order of execution.

That completes the overview.

THE NITTY GRITTIES

Now, here are more details for each step in the list above:

/sbin/init and **/etc/inittab**

The **init** program (**/etc/init** is a link to **/sbin/init**) is started during boot, and continues to run as a daemon (called the boot **init**) while the system is up. Its primary duty is to spawn other processes. During boot, it looks at the

/etc/inittab file to determine which processes need to be spawned. During run time, root also can issue **/sbin/init** as a program, this "user-spawned" **init** takes a single number as an argument, and sends a signal to the boot **init** telling it to change to this new run level. Thus, **init** gets involved whenever run levels are changed. During boot, if the default line in the **/etc/inittab** file says the system should boot to run level 3 (**init:3:initdefault:**), **init** will run **/sbin/rc**, telling it to which run level it should be changed. **/sbin/rc** will run all rc files needed to get to the new run level.

/sbin/rc

The rc script is the sequencer script. Its purpose is to invoke the command that sources all needed configuration variables (**/etc/rc.config**), then source all scripts (**/sbin/rc?.d/***) needed for this run level change, in the proper order. If you are at run level 0 and booting, rc will run all startup scripts needed to get to run level 1, then 2, then finally, run level 3 startup scripts. Note that the rc script also does several things we did not mention, such as looking for some instant ignition files, and invoking **set_parms** if this is the first boot (or if hostname is not set).

/etc/rc.config

The **rc.config** script is sourced by **/sbin/rc**. It checks all files in the **/etc/rc.config.d** directory for valid names and, if true, sources the files. Because **rc.config** was sourced by rc, the scripts that **rc.config** sources are being sourced into the rc script.

/etc/rc.config.d

Here is where things start to get interesting. All the files in this directo-

ry are sourced into the rc script. The only thing you should put in any of these files is variable settings. Some may need to be exported. The name of the file should represent the purpose of the variables being set, and the name of the rc file that uses the variables. Any of the scripts that are executed at different run levels should have a corresponding file here that controls the operation of the scripts. For example, the file `/etc/rc.config.d/lp` only has one line: **LP=1**.

This is used to tell the script that starts the lp system that it should start **lpsched**. The purpose of these rc.config.d files is to prevent any need for editing of shell scripts. These files should have a variable for every setting you might need to make during boot. A better example of this is the `/etc/rc.config.d/netconf` file. There are 27 variables set in that file, they are used for all network configuration — from hostname to IP address — and routing information. It is much easier to edit a file of 27 variables, than to sift through the 292 lines in the `/sbin/rc2.d/S340net` script.

/sbin/rc?.d/* and /sbin/init.d

This is a rather weird setup, and is mis-documented in many places. Here's the scoop: All Run Control (rc) files live in the directory `/sbin/init.d`. There will probably be two links to that file. One link would live in the run level directory in which the programs should be started. The other link would live one run level directory below that. For example, if you had a license server that needed to be started at run level 3, the following files, and links might be created:

<code>/sbin/init.d/license</code>	shell script
<code>/sbin/rc3.d/S200license</code>	link to <code>/sbin/init.d/license</code>
<code>/sbin/rc2.d/K800license</code>	link to <code>/sbin/init.d/license</code>
<code>/etc/rc.config.d/license</code>	variable setting script

The `/etc/rc.config.d/license` script might have only one line, such as **license=1**. The script would only start the license server if this variable were set to 1. Thus, to disable the server, just edit `/etc/rc.config.d/license` file. The links provide two different names for the `/sbin/init.d/license` script. Each name

is used at different times by the `/etc/rc` script when it needs to run the init.d files.

/sbin/rc3.d/S200license

This would be called during transition from run level 2 to 3 to start the server. Note the name starts with **S**, which makes it a startup script; that is, called during transition into a run level (going up in run levels).

/sbin/rc2.d/K800license

This would be called during a transition from run level 3 to 2. It's a kill script (name starts with a **K**), so it is called when dropping a run level, and used to stop any programs that should not be running at the new run level. In this case, when you drop from run level 3 to 2, all `/sbin/rc2.d/K*` scripts are executed. The numbers are not related to each other, as some would lead you to believe, but instead are used to establish the order that the files are executed in.

HOW DO YOU COUNT TO 1,000?

Some say that an **S** script numbered 991

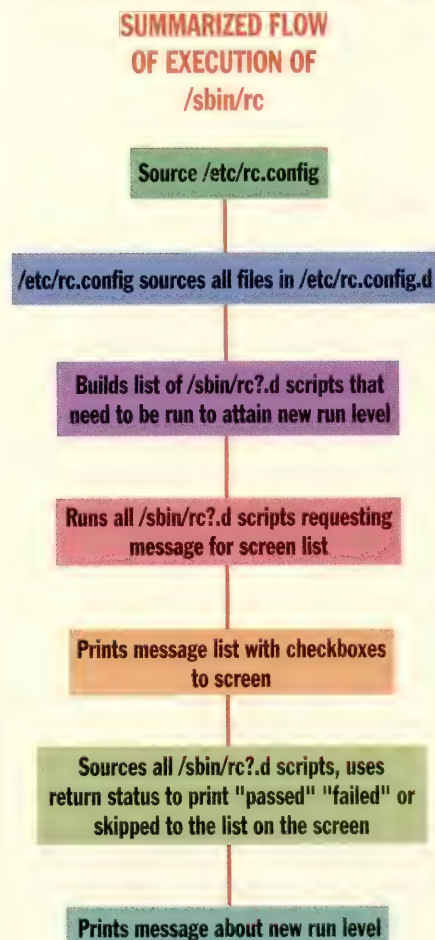
means that the **K** script should be numbered 009 (so the two should add up to 1,000). In my example, we used 200 and 800, so it does "add up." But in many of the shipped files (for example, `dtlogin.rc`), this convention is not used. In practice, it's possible to have numbered scripts that *do not add up to 1,000*, because they are used independently. The purpose of the numbers is to determine the order of execution. You should look at the other programs being started or stopped at that run level, and choose a number that will get your file executed when it needs to be.

It does follow that a program that needs another daemon running before it is started, should be stopped before that daemon. Thus, if everyone — *HP included* — had followed the rule of 1,000 (where the numbers sum to that amount), then you could safely assume that if the required daemon is in an S400 file, and you pick S420 for your startup file, then the kill file for that daemon is K600, so K580 for your file would have it run in stop (kill) mode before the daemons stop file.

Remember that there could be some programs that should be started first *and* stopped first. So that's what makes the "rule of 1,000s" a *suggestion and not a rule*. Now, remember that these names are both links to the same script, so how does it know to start or stop the server? This is done by the `/sbin/rc` script. When it calls start scripts, it sends a first argument of **start**. When calling kill scripts, it sends a first argument of **stop**. This means that the script must check for which situation it is needed, and "do the right thing" (either start or stop programs).

Actually, this is a bit of a shortcut on the description of the script, because it must be able to handle another argument, which is a request for a description. We will save that, and an in-depth look at a real example of an extension startup file that starts a license server for next month.

— *Don't wait with bated breath. Breathe a sigh of relief via e-mail to Fred at frederm@aol.com*



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An Event-ual Winner

Whenever a network crashes, the number one priority is to find the root cause of the

problem. Of course, that's easier said than done when the network management console — with all manner of red icons depicting affected nodes — is going off like fireworks in the night sky. When your e-mail crashes, how can you tell if it's a router configuration problem, an overloaded e-mail server or some virus that crept in on a user's disk? In that situation, network managers must usually scroll through hundreds of event messages just to find the few demanding attention. That's because the events pointing to the likely source of a problem are mixed in with events that obscure the root cause.

Unfortunately, some of today's network management systems — including HP's OpenView — don't provide much help in filtering out the "noise" while highlighting what network managers really need to know. Last year IBM introduced an Event Correlator feature that is a step in the right direction, and Cabletron has had modeling capabilities for some time that assist in filtering out unwanted alerts for a wide range of network equipment, but not for software applications like e-mail. HP seems to have left the problem of event filtering and event correlation entirely up to third-party developers.

Until now, that is. The Australian contingent of HP's Network and Systems Management Division (NSMD) has announced a productized

technology featuring a truly innovative approach to handling massive volumes of network events. Called Event Correlation Services (ECS), the software is actually comprised of 15 very primitive functions that can be mixed and matched in all sorts of ways to solve complex correlation problems. Combinations of these 15 ECS functions also can be distributed all over the network to spread out the workload involved in event correlation.

CONTENT IS KING

On HP OpenView and most other management system screens today, event listings don't highlight the important relationships and dependencies between events. And more importantly, event listings don't immediately highlight customers impacted as a result of an outage. Even those management systems supporting event filtering rely on a flawed filtering paradigm in many cases, as each event is treated independently. In these systems, the decision to discard, suppress or forward an event is made based on the contents of that event alone, rather than on the content of multiple related events.

And that's where HP ECS is different. The product not only uses distributed data reduction methods to process high volumes of events quickly, it provides mechanisms for looking at the meaning of events in context. Theoretically, ECS could be deployed

to discern the cause for a misbehaving e-mail program, looking through the multiprotocol router and comparing information from various devices and applications to discern the crux of the problem. But to accomplish this kind of correlation without writing lots of complex rules ahead of time, one needs a correlation system capable of correlating events across multiple protocols. One that can concurrently handle multiple event types and rearrange events arriving out of order. HP ECS does all of this — and more. HP ECS performs correlations based on the content of multiple events and, finally, displays only those events which require the network manager's attention.

In many large networks today, correlation is handled by funneling huge streams of events to a central "expert system" for processing. But this can be inefficient and slow, and the rules are often too complex to build and maintain. As a result, there are too many opportunities for "strange cases" to drop through the cracks. HP's ECS is promising because the event correlation must occur as close to the event source as possible. It has to be fast, it has to be efficient, and it has to be smart. HP seems to have hit a home run with ECS. Distributed, flexible, fast — they're simple building blocks that can be combined into one very powerful solution.

NO HAPPY ENDING IN SIGHT

So what's the down side? Right now, ECS is targeted primarily at carriers and telecom service providers because the product isn't integrated out-of-the-box with HP OpenView Network Node Manager or any other HP prod-

ucts familiar to end-users. Eventually, HP is expected to come out with more end-user versions of ECS. When that happens, customers will have some very powerful capabilities in their hands. But, it can't happen soon enough.

TRANSLATION PLEASE

ECS also supports only SNMP- and CMIP-compliant alerts in this initial release.

However, many customers have plenty of non-SNMP systems to manage, requiring translation of ASCII console messages and alerts into SNMP

HP OpenView event listings don't highlight the important relationships and dependencies between events.

HP's ECS is promising because the event correlation must occur as close to the event source as possible.

format. But there are products available today that can be combined with ECS to get around this limitation of translating non-SNMP messages into SNMP.

From all appearances, HP has solved a big problem. But this success story is unfinished. If HP can package this technology properly for end-users and deliver it into the hands of HP OpenView customers, then the story will be complete.

— Will network administrators and HP live happily ever after? Write your own ending to the story and send it to Jill at jill@snmp.com.

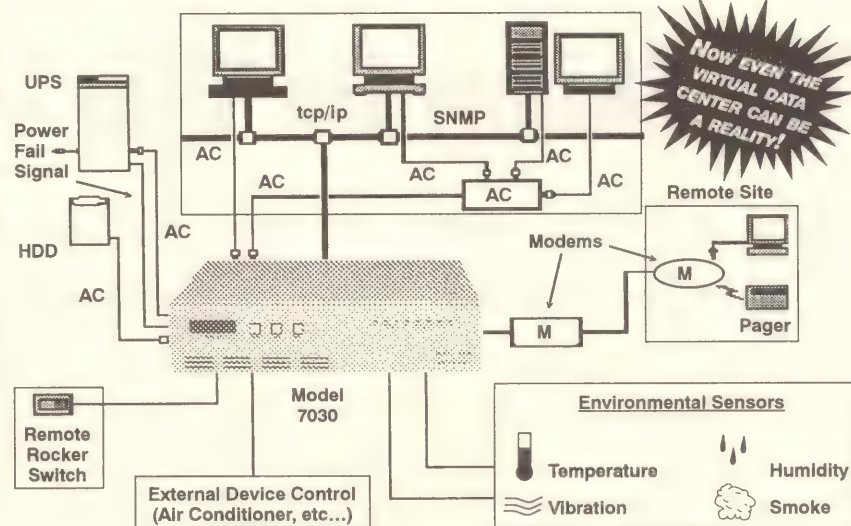
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The Skinny On Thin — It's Phat

Have you ever noticed that a lot of so-called “new technology” is really “old technology” in

different clothing. For example, TCP/IP, at the heart of the overhyped Internet, began its life in the 1970s. Windows 1.0, still at the heart of the hyper-hyped Windows 95, was “borrowed” from the Mac, which was first introduced in 1984. Another technology that is now fashionable again is the so-called “thin client.”

In the late 1980s, 3Com Corp. (Santa Clara, Calif.) discovered that corporate users wanted more from a PC than a diskless workstation could deliver. So 3Com came up with the 3Station, which was, in essence, the first “thin client.” The 3Station offered local processing capabilities and no hard disk storage. But 3Com had trouble delivering 3Stations with 386 CPUs (state-of-the-art CPU technology at the time), and thus wasn’t competitive with the fastest “guns” then available. The company subsequently dropped the 3Station after several years of less-than-satisfactory sales.

PULLING INTO THE NETSTATION

Now Tektronix Inc. (Beaverton, Ore.) has introduced the concept of the “netstation.” A netstation, while more than a dumb terminal is still less than a PC, with just enough “intelligence” (i.e., CPU capabilities) to become what is basically a protocol-processing “engine.” In reality, this “thin” client” is an X Window terminal masquerading as an all-purpose desktop comput-

ing device. But now, as then, it remains to be seen whether corporate computer buyers will accept the “less is more” philosophy of the thin client.

Unlike the “thick” (or fat) client, which is a full-featured PC, Macintosh or RISC CPU-based workstation with disk drives and a computational CPU designed to process information locally, a thin client focuses on information access and delivery. It merely displays the results of processing performed on another computer. For example, at the core of Tektronix Inc.’s TekXpress netstation is a MIPS R3000 processor. HP has its own “netstations” with its Envizex and Entria Plus X stations, which use an Intel i960 CPU. The i960 is optimized for display operations.

Thin clients or “netstations” are thus designed to give users in enterprise computing environments access to information residing on all of a large organization’s various networked data warehouses. This could be an IBM mainframe, a PC server running a custom-developed multiuser version of Microsoft’s Windows NT server, a midrange minicomputer running UNIX or a Web server. And, in at least one case, they do it for less than \$1,000 per machine.

But don’t confuse this version of a low-cost desktop computer with the 3Station, or the \$500 “black box” proposed for the home market by Oracle Corp. CEO Larry Ellison. Only time

(and the buyers in the marketplace) will tell whether Oracle or anyone else can produce and successfully market a \$500 “network computer” to the home market. Like the 3Station, the thin clients from HP, NCD, Tektronix and several other vendors are focused on “the Fortune 100/Fortune 1000 customer who are trying to solve large transaction-based systems problems,” explains Doug Klein, president and general manager of NCD Systems Corp. (Mountain View, Calif.), a subsidiary of Network Computing Devices.

IT'S A THIN LINE

Thin clients are ideal for “the corporate market where Internet and intranet functionality will be very important to companies for solving data distribution problems,” says Lee Rainey, manager of Tektronix’s network display business product marketing group. “We combine netstations with systems already in place.” Two primary issues facing MIS personnel drove the development of thin clients. These are the costs associated with maintaining PCs and software, as well as growing user demands for access to multiple types of information systems, such as mainframes and Web sites. “We’re in the business of providing access to network resources,” says NCD’s Klein. “We don’t build computers for the desktop, but a computer that you plug into the network that gives access to other machines.”

Mukund Ghangurde, product marketing manager for HP’s Panacom Automation division, which manufactures HP’s X Stations, says an HP study revealed that thick clients must be upgraded “every two to three years

because of new operating systems and changing applications. Whereas, the thin client doesn't have to be upgraded as often, only every four or five years" because software upgrades typically occur only at the server or mainframe, not the client. With all software processing performed on a mainframe, Web server or multiuser Windows NT server, "you don't have to upgrade a thousand desktop machines," says Tektronix's Rainey. "The software upgrade process is thus simplified tremendously, saving both time and money."

NT TO THE RESCUE

Typically, netstation users "do a lot of work on UNIX, and [they access] the NT machine on the network for occasional word processing," says Rainey. Consequently, Tektronix, HP and NCD have all developed proprietary multiuser versions of the Windows NT server, which they run on Pentium-class PCs. In this scenario, end-user PC-based applica-

tions are run on top of Windows NT, with the results (i.e., graphics and data) displayed on the thin client.

Rainey says Tektronix has seen customers "support up to 100 users on multiprocessor Pentiums. It's a very economical way to access PC applications." A typical Pentium-class machine running NCD's WinCenter Pro can handle "anywhere from 10 to 20 users," says Klein. These products, which sell for \$200 to \$395 per user, are in addition to the cost of the thin client itself. At \$995 to more than \$3,300, depending on manufacturer and options, the thin client is relatively inexpensive. But thin client vendors generally figure their product will share a desktop with another computer — such as a RISC-based workstation in an engineering department. This dual computer arrangement thus makes for an expensive overall solution.

Admittedly, the 3Station was a different kind of "beast" than the current thin clients. At that time, only a select

few users needed access to the Internet or host-based systems — the Web was as yet unheard of, the terminal market was considered the poor stepchild to the PC and the X Window protocol had yet to gain wide acceptance. But with X terminal and PC sales both reportedly lagging, and end users accustomed to controlling their own desktop environments, I can only wonder if thin clients will remain in the shadow of their "thicker" counterparts.

—Jim Carr, a Saratoga, Calif.-based freelance business and technology writer, worked at 3Com Corp. in the late 1980s when it produced the 3Station, which he only used for e-mail while actually writing on a "real" computer with disk drives. The netstation concept didn't sell well then, and he wonders why vendors expect it will sell any better now. Help him stop wondering by sending your thoughts on the matter to him at 73561.1577@compuserve.com.

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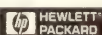
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Corporate Intra-ductions

If you think the World Wide Web is "hot" now — just wait. But, you probably aren't going to wait long.

With more than 60 million PCs connected to corporate networks, the possibilities for Web-based private internets, or "intranets," are virtually endless. Intranets, or internal, single-company internetworks based on TCP/IP and Web servers, are just now starting to help a growing number of MIS departments solve any number of long-standing connectivity problems.

They are "the perfect solution to a lot of internal company communications problems," notes Dr. Lawrence B. Afrin, a medical instructor and the principal developer of the single-server Webnet at the Hollings Cancer Center at the Medical University of South Carolina (Charleston, S.C.). In addition, intranets offer huge potential cost savings over existing network technologies, notes Burt Knight, a Concord, N.H.-based consultant who's helping one East Coast financial services company design a large intranet. Comparing the cost of Web server software (\$499 to \$1,500) and client browsers (usually free) against the price of a Lotus Notes license (\$399 per user), he points out that intranet users "can do a lot of what groupware does very easily and a lot cheaper."

The intranet at the Hollings Cancer Center was developed to eliminate a "blizzard of paper" that overwhelmed medical researchers, says Afrin. Afrin's field, an area of medical research known as clinical trials, generates tons of paperwork in many forms, including a proto-

col that spells out the details of a clinical trial. Protocols, which often run 30 pages or more, are distributed in several stages to a variety of medical professionals, resulting in hundreds of copies. Afrin solved the problem by putting each protocol on a Web server, thus creating a single, up-to-date copy that is available to all Hollings Cancer Center personnel with access to the intranet.

Pharmaceutical manufacturer Chiron (Emeryville, Calif.) uses its intranet to disseminate a database of graphical images of molecular structures of company-created chemicals, says Boyd Waters, a Macintosh systems analyst with Chiron. With the intranet, Chiron can "easily add to the database and have the graphics of the chemical structure — the picture of the molecule — available for everyone, no matter whether they're using a Mac, a PC or a Silicon Graphics machine," he explains. "Before the Web, database applications that could effectively deal with graphical information on multiple platforms "were nonexistent."

FOR THE WEB-CHALLENGED

Yet, despite what seems like the instant popularity of intranets in the trade press, mainstream corporations have been slow in developing intranet pilot implementations. Gene Quinn, a consultant helping the Georgia Department of Corrections (Atlanta, Ga.) build a statewide intranet, says "it's a new technology, and it's difficult for people to grasp the overall vision

of what can be done." Chiron's Waters, who previously helped a consulting firm build an intranet for Wells Fargo Bank (San Francisco, Calif.) with an old SPARCstation and the National Center for Super Computing Applications (NCSA) "shareware" Web server software comments, "that combination when used with two other shareware applications, Perl and Linux, created unexpected problems. And, there was no technical support, so it made it pretty challenging."

Yet another difficulty has been the impact of adding TCP/IP and resulting support issues to corporate networks. "Not all companies have a strategy about how they will make TCP/IP pervasive in their organization," explains Katherine Warner, director of Digital's intranet program office. Not the least of these are multiplatform support for textual and graphical information, timely distribution of data to widely dispersed branch offices, and the general glut of paper flooding offices.

Intranets aren't new, however. Employees at Sun, Digital and HP have had access to intranets for more than three years. In fact, HP has one of the largest private internal networks in the world, with some 450 internal Web servers throughout the company. And now, other organizations are realizing that intranets can offer strategic and tactical advantages. —*Jim Carr is a Saratoga, Calif.-based freelance business and technology writer who thinks the Web will ultimately become the CB craze of the 1990s. He can be reached at 73561.1577@compuserve.com.*

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Making Peace With Pax

Everyone knows someone who loves to complain. Not about everything. Just one thing. But,

they love complaining about it so much that they never do anything to correct it. For example, maybe you know someone with an older model car. You hear the complaints about how it keeps breaking down, and how they are consistently late for work or appointments. But then, although better cars are certainly available, they never seem to go out and buy a new one. In the world of UNIX jockeys, who has not complained about **tar**? Yet, how many people are using the new replacement command? Uh, huh. Just what I thought — very few.

I was amazed during the April InterWorks Conference in San Diego when the underwhelming response to mentioning the **usr/bin/pax** command was a blank stare. Maybe I'm mispronouncing it. Or maybe people just don't want to let go of **tar**.

Where did **pax** come from? Probably from the need to have an archive command, and fixing **tar** seemed hopeless. So, to fill the need for an archive command in the SPG4/POSIX.2 spec, **pax** was developed "by Mark H. Colburn, OSF and HP," according to the man page. It's been available in HP-UX 9.x for some time.

PAX IN 10.10

A slightly newer version of the **pax** command also is available in HP-UX 10.10. In the man pages, it says that

the command is written to a "draft" of the POSIX.2 spec, and therefore that version should be used only if necessary. The HP-UX 10.10 operating system is *UNIX95 branded*, which means the commands meet the XPG4 R2 spec for commands and utilities. That version of **pax** should be safe to use for reading **tar** or **cpio** tape's — but possibly not for long-term storage. Still, with the additional capabilities that **pax** offers, it's certainly worth the trouble to learn. Especially because the UNIX95 spec defines **tar** and **cpio** as being obsolete, and probably will be dropped in the (long-term) future. **pax** writes archives in USTAR format, unless you use switches to tell it otherwise.

Now then, let's look at the reasons you might want to start using **pax**. Here's a list of things that **pax** allows, that were rather difficult to do with either **tar**, **cpio** or both:

- Selectively writes and reads files to archive.
- Changes pathnames when reading from an archive.
- Controls which attributes of a file should be preserved or dropped.
- Sets a "keep" flag to prevent overwriting of existing files.
- Extracts only newer files from an archive.
- Writes **cpio** or extended (USTAR) format archives.
- Prevents traversing filesystems.

- Preserves access times of files that were archived.
- Impress your friends with your knowledge.

PAX TO THE MAX

I'll skip the verbose descriptions of the command and jump right into examples (read the man page for supporting information).

A simple write of an archive looks like this:

```
$ pax -w -f all1995.pax *
```

where we created the archive file (**-f all1995.pax**) and wrote (**-w**) all the files in the current directory (*****) into it. If we omit the **-w** option, files in an archive will be listed:

```
$ pax -f all1995.pax
april
dec.txt
feature.10.1
feature.10.2
feature.10.3
feb95
june
oct
$
```

Lets play with the selective filtering option:

```
$ pax -f all1995.pax "*"10*"
feature.10.1
feature.10.2
feature.10.3
$
```

In this case, the quoted string (to protect it from the shell) was used as a match of what I wanted to list from the archive; if used with the **-r** option, it would have read (and restored) from the archive only those pathnames that matched the pattern. You can also specify the **-c** option, to complement the filtering. So in the next example, it lists all except those that have a **10** in them. A **-v** option will perform the

long listing when the **-r** or **-w** options are not used.

```
$ pax -c -f all1995.pax "*10*"
april
dec.txt
feb95
june
oct
$
```

LEADING YOU ON

One of my favorite things about **pax** is the ability to extract and change the names of files at the same time. This can be used for changing not only the names of files, but also for removing leading **/**, as well as changing target directory names. Here is a simple example, using the archive created above:

```
$ pax -r -f all1995.pax -s/.10/_10/ "*10*"
$ ls *10.1
feature_10.1 feature.10.1
$
```

In this case, we used the **-r** option to read from the archive. The **-s** option works just like the **ex** substitute command. So, **-s/.10/_10/** changed the **.10** in three of the files in the archive to **10**. Actually, it would have matched **<anycharacter>10**, as full regular expressions are taken, and **.** means any single character. The **"*10*"** said only read names that match this pattern.

Still another example of its use would be if someone shipped you a **tar** tape with a pathname you did not want to restore to in the tape archive:

```
$ tar tf /dev/rmt/0m
/usr/games/xbill/...
...
```

You could use **pax** to fix this, and restore stuff from the tape into a different directory:

```
$ pax -r -f /dev/rmt/0m -s=/usr/games=/opt/misc=
```

Reading this command in all its verbosity: Extract (read) from the archive loaded on the tape drive at device **0m**, all files under the directory **/usr/games**, but put them in **/opt/misc** (done by performing a substitute on the output pathname). We used **=** as the substitute separator. Multiple **-s** options can be supplied, but only one will ever act on a pathname; the first successful substitute terminates substi-

tutions. There is also a **g** flag to the **-s** option, so something like **-s/_/_/g** would change all hyphens to underscores, in every pathname. You did not even have to tell **pax** that this was a **tar**-written archive.

There is a **-k** option, which effectively allows a merge operation when restoring an archive. For example, I will delete one file from the directory we have been using as the example, then use **pax** to "merge" the archive, and restore the missing file to the directory without overwriting any other files:

```
$ rm oct
$ pax -rkf all1995.pax
```

This would result in the message "pax: <filename> : The file exists and will not be overwritten." for every file that existed. But the file **oct**, which was deleted, was restored. Please note that the HP-UX 9.x version of **pax** does not have the **-k** option.

pax can also copy things, as if they were written to archive and restored. With the **-l** option, it will hardlink instead of copy files, if possible. Here is an example of using **pax** to copy a tree structure:

```
$ mkdir /tmp/test
$ pax -rw -s/.txt//p * /tmp/test
dec.txt >> dec
$
```

Note that the target directory had to be created first. And that the **p** modifier to the **-s** option means write substitutions to **stderr**. This command copied all files from the current directory to **/tmp/test**, and removed any **.txt** strings, of which there was only one. The file **dec.txt** was called **dec** in the **/tmp/test** directory.

There are many more options, but it should be enough to help you read the man page(s).

There is one rather serious limitation written into the specification for **pax**. It will not work in "copy" mode (**-rw**) on pathnames that have over 14 characters in them. Here is an example:

```
$ pax -rw 9XSoftBenchXsession /tmp
pax: /disc: intermediate file name too long
```

You can write archives, and read them with long filenames, but the copy errors on long names. Here is a copy performed using a pipeline, to avoid the error. It copies the longnamed file from the current directory to **/tmp**:

```
$ pax -w -f 9XSoftBenchXsession | pax -r -f /tmp
```

—What other things about UNIX or HP-UX do you like to complain about? Tell Fred at frederm@aol.com.

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HELP DESK

Don't like **vi**? Here is something you may wish to look into. Three problems though: first, its command line syntax was derived from an old minicomputer line editor, so it requires relearning almost from scratch; second, it costs money, but not much — \$250; third, the author is sometimes hard to get a hold of, but is very helpful once you do. The product is called **SYSEdit** from Information Systems Technologies, 13621 S.E. 19th St., Bellevue, WA 98005; (206) 644-7441.

Here at NGS, we have it installed on about a dozen Sun machines, and are planning to convert to a site license for all of our Sun and HP 9000 hosts very soon. The full screen portion of the editor does the usual **vi** things, but with user-definable function keys or control sequences rather than silly sets of upper and lower case letters. The command-line commands will do anything that you might use **SED** for, once you get the hang of it. The author did his best not to create another resource hog like **emacs** and we find it is a great improvement, particularly if you are using a system console or an X terminal as the user interface. Try it, you might like it.

Robert Harris
National Geodetic Survey
Silver Spring, Md.

new Products

Century Software Inc. Provides TinyTERM V3.2

Century Software Inc. announced version 3.2 of its TinyTERM Series for Microsoft Windows 95 and Windows 3.1. It includes: a true 32-bit architecture, a Windows 32-bit VxD kernel; an NFS client; an ftp client; LPR/LPD printer sharing; automated file transfers; and a single-step installation.

The new product components are available with version 3.2 of TinyTERM (\$79 per user), TinyTERM Plus (\$99 per user), TinyTERM+NFS (\$179 per user) and TinyTERM Pro (\$259 per user). Contact Century Software, 5284 S. Commerce Dr., Salt Lake City, UT 84107; (801) 268-3088; sales@censoft.com; www.censoft.com.

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PeopleSoft Supports Microsoft SQL Server

PeopleSoft Inc. announced the availability of its client-server human resources management software for Microsoft SQL Server version 6.0 client-server database management system. Also, PeopleSoft plans to release a Microsoft SQL Server 6.5 version of its PeopleSoft Financials, Distribution, Manufacturing and HRMS applications. Contact PeopleSoft, 4440 Rosewood Dr., Pleasanton, CA 94588; (510) 225-3000; info@peoplesoft.com; www.peoplesoft.com.

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Gradient Unveils WebCrusader

Gradient Technologies Inc. announced WebCrusader, a software family that allows users to create secure, real-world intranets. It is based on DCE and provides strong authentication and privacy, audit trails, high availability, fine-grained access control, management for large networks and location transparency. The family includes: WebCrusader Connect Client (\$75), WebCrusader Connect Server (\$1,500), WebCrusader Security Authority (\$1,500),

WebCrusader Secure AppEngine (TBA), WebCrusader Commander (\$1,500) and the Regii Remote Client Configuration Tool (\$2,995).

Contact Gradient Technologies Inc., 2 Mount Royal Ave., Marlborough, MA 01752; (508) 624-9600; info@gradient.com; www.gradient.com.

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KL Group Inc. Launches Oletra

KL Group Inc. announced Oletra, a new product line of Windows-based GUI components. The first release is Oletra Chart, which brings KL Group's charting technology to Windows developers in OCX and DLL formats. Oletra Chart contains a 2D and 3D OLE/ActiveX control that lets Windows developers add area graphs, X-Y plots, bar charts, pie charts, combination graphs, financial graphs, logarithmic scientific charts, 3D bars and surfaces, and contour plots to their applications. Price is \$249.

Contact KL Group Inc., 260 King St. E., 3rd Fl., Toronto, ON M5A 1K3; (416) 594-1026; info@klg.com; www.klg.com.

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INSO Corp. Delivers Quick View Plus

INSO Corp. announced an enhanced version of Quick View Plus that operates as a Plug-in for Netscape Navigator 2.0. It enables Navigator 2.0 users to view, copy and print virtually any native file type from within the browser window as seamlessly as they can view documents created in HTML within their Web browser.

QuickView Plus Plug-in technology can be accessed as a file attachment assistant, can be embedded with a document within HTML or can link any native document or file within HTML.

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Circle 396 on reader card

Brio Technology Supports PeopleSoft's Open Query API

Brio Technology announced its support of PeopleSoft's Open Query API, which allows users to access PeopleSoft applications through BrioQuery Enterprise, a desktop decision support solution with integrated query, desktop OLAP, interactive charting and reporting. Users also can leverage PeopleSoft's metadata through BrioQuery Enterprise's Open Metadata Interpreter. Contact Brio Technology, 650 Castro St., Ste. 400, Mountain View, CA 94041; (415) 961-4110; info@brio.com; www.brio.com.

Circle 395 on reader card

Metrica Releases Metrica 4.2

Metrica Inc. announced Release 4.2 of the Metrica data management, analysis and visualization toolkit. Metrica's new database administration utilities reduce unscheduled maintenance and repair, and boost system availability. Features include a database health check, online table repair and database lock facility.

Metrica's enhanced graphics package, Kingfisher, supplies greater visual detail without having to reproduce graphs or queries. And the Zoom Tool allows users to pan "zoomed" graph results and stack magnified sections.

Contact Metrica, 8 Winchester Place, Winchester, MA 01890; (617) 756-0022; sales@metrica.com; www.metrica.com.

Circle 394 on reader card

Harris EDA Introduces EDAassimilator

Harris Electronic Design Automation Inc. (Harris EDA) announced the availability of EDAassimilator, a software tool suite for manufacturing synthesis that complements existing CAE/CAD tools to improve design-for-manufacture and streamline manufacturing processes for printed circuit boards. It lets design, layout and manufacturing engineers analyze manufacturability, cost, yield and assembly analysis to identify assembly process inefficiencies or design weakness before prototypes are built.

EDAassimilator is available for PC platforms running Windows NT, Windows 95, Windows 3.11, and on UNIX workstations from HP and Sun. Prices begin at \$10,000.

Contact Harris EDA, 7796 Victor-Mendon Rd., Fishers, NY 14453; (716) 924-9303; info@sc.harris.com; www.harriseda.com.

Circle 393 on reader card

3k Associates Releases NetMail/3000 On The Web

3k Associates announced that it will make a two-mailbox version of NetMail/3000 and associated manuals available for free on its Web and ftp servers. NetMail/3000 is a fully-functional SMTP/MIME/POP2/POP3-compatible e-mail system with a menu-based user interface with user-defined folders and mailing lists, and an accessible command-line interface. It has built-in context-sensitive help, automatically uploads and downloads files from PCs (supports Reflection, MS92, AdvanceLink and Business Session), and multimedia capabilities for R1/Windows users.

NetMail/3000 runs on any HP 3000 system running MPE/iX 4.0 or later, and can communicate with any other SMTP-compatible mail systems without any special hardware or software.

Contact 3k Associates, 6901 Old Keene Mill Rd., Ste. 205, Springfield, VA 22150; (703) 569-9189; sales@3k.com; www.3k.com.

Circle 392 on reader card

Platinum Technology Updates InfoReports 2.0

Platinum Technology Inc. announced InfoReports (formerly ProReports) version 2.0, a tool that enables users to retrieve data from multiple databases on multiple platforms and combine the data into a single customized report. It features advanced graphing capabilities, dynamic cross tab, Rich Text Format (RTF) conversion and support of the MAPI interface.

The Windows and Windows NT client versions cost \$695, and the Motif version costs \$1,395. InfoReports Server is available on HP-UX, Sun Solaris, IBM AIX, Digital OpenVMS and Windows NT starting at \$10,000.

Contact Platinum technology, 1815 S. Meyers Rd., Oakbrook Terrace, IL 60181; (800) 442-6861; info@platinum.com; www.platinum.com.

Circle 391 on reader card

ProAmerica Systems Enhances SCM V4

ProAmerica Systems Inc. released Service Call Management (SCM) Version 4, an advanced client-server customer support application. Version 4 features two optional modules. The Return Merchandise Authorization (RMA) module allows users to manage the merchandise repair and return process from the manufacturer and the customer perspective. The Defect Management module provides users with

the ability to track, manage and solve development-related tasks. Both modules cost \$695 per user.

SCM for Enterprises starts at \$1,895 per user and runs on Informix, Oracle, Sybase, SQL Server and DB/2. SCM for Workgroups starts at \$1,295 per user and also is available using the Sybase SQL Anywhere and Watcom databases.

Contact ProAmerica Systems, 959 E. Collins, Richardson, TX 75081; (214) 680-9600; bruceb@proam.com; www.proam.com.

Circle 390 on reader card

Diamond Optimum Produces VCS 4.5

Diamond Optimum Systems announced release 4.5 of its configuration management tool set, Version Control System (VCS). VCS provides a single point of control for the software development and distribution activities on the UNIX, MPE/iX, Windows, Macintosh and OS/2 platforms.

Release 4.5 supports Powersoft's PowerBuilder by providing automatic documentation, impact analysis, version control and distribution for the PowerBuilder libraries and objects. VCS allows the users to view the change history for any file, object, developer, project, release and date, as well as to compare multiple releases and recover old versions.

Contact Diamond Optimum Systems Inc., 22081 Ventura Blvd., Ste. 105, Woodland Hills, CA 91364; (818) 224-2010; diamondos@aol.com; www.diamondos.com.

Circle 389 on reader card

Seagate Adds Support To AssetManager 2.1

Seagate Enterprise Management Software (SEMS) announced AssetManager 2.1, that enhances its inventory capabilities with performance improvements, as well as added support for Oracle databases, the IBM AIX operating system, NetView for AIX management platforms, and collection from Microsoft Windows 95 and Windows NT devices. It supports computers running HP-UX, Windows 95, Windows NT, OS/2, DOS, MacOS, SunOS, Solaris, IBM AIX, Novell NetWare, Banyan Vines and Windows for Workgroups.

Price for a base package that includes a 10-UNIX and 10-PC node pack is \$4,995. Contact SEMS, 19925 Stevens Creek Blvd., Cupertino, CA 95014; (408) 342-4500; info@sems.com; www.sems.com.

Circle 388 on reader card

StorageCenter Integrates With SQL-BackTrack

Software Partners/32 Inc. and DataTools Inc. announced the integration of StorageCenter, a storage management suite for UNIX, with SQL-BackTrack, a comprehensive Oracle and Sybase backup and recovery tool. The integration will allow administrators to back up live databases, as well as perform incremental and object-level backups of large database files.

The Enterprise version of StorageCenter starts at \$6,250, the Workgroup version starts at \$1,875. StorageCenter supports HP-UX, Sun Solaris, SunOS, IBM AIX and Digital UNIX. SQL-BackTrack is available for Oracle and Sybase, and starts at \$4,595 per server.

Contact Software Partners/32 Inc., 447 Old Boston Rd., Topsfield, MA 01983; (508) 887-6409; info@softwarepartners.com; www.softwarepartners.com.

Circle 387 on reader card

Professional Protocol Announces WatchDog-HA

Professional Protocol announced WatchDog-HA high availability and failure management software for all UNIX platforms.

WatchDog-HA automatically reconfigures available replicated resources when hardware or software failures or outages occur. Applications and users that can't experience interruptions are automatically restarted on another machine in a single server, dual server or cluster environment. It allows system administrators to use SNMP agents or SQL database availability. Contact Professional Protocol, 690 Market St., Ste. 925, San Francisco, CA 94104; (415) 433-2763; sales@protocols.com; www.protocols.com.

Circle 385 on reader card

Marathon Enhances Data Protection

Marathon Technologies Corp. introduced its fault tolerant solution for Windows NT environments. The technology gives insurers a platform on which to underwrite the Extended Warranty coverage for a company's electronic data loss.

Marathon's Extended Warranty provides additional protection to customers against data loss. Marathon's fault tolerant approach combines its enabling software and interconnect technologies with industry-standard PCs and PC servers running Windows NT.

The Marathon-protected PC server

provides continuous support for mission-critical applications despite hardware failures, and can be deployed as standalone fault-tolerant servers, network servers or cluster nodes.

Contact Marathon Technologies Corp., 1300 Massachusetts Ave., Boxborough, MA 01719; (800) 884-MIAL; marathon@mial.com; www.mial.com.

Circle 384 on reader card

NetSoft Releases DynaComm/Elite V3.6

NetSoft announced version 3.6 of DynaComm/Elite, a client software product for concurrent 3270- and APPC-based PC-to-mainframe connectivity. DynaComm/Elite 3.6 now supports up to 15 concurrent PC-to-host sessions. Other new features include support for TN3270E emulation for TCP/IP networks, ODBC access to IBM DB2 host databases, async and X.25 connectivity via the Renex Asynchronous Protocol, APPC connectivity through Microsoft's SNA Server, custom printer fonts, enhanced printer session status information and a new configurable session inactivity time-out feature.

DynaComm/Elite 3.6 is priced at \$395. Contact NetSoft, 31 Technology Dr., 2nd Fl., Irvine, CA 92718; (714) 753-0800; sales@netsoft.com; www.netsoft.com.

Circle 383 on reader card

BMC Software Addresses Availability Issue

BMC Software introduced OPERTUNE which supports HP-UX and Sun Solaris high-end server platforms. The product dynamically tunes the HP-UX or Solaris OS kernel parameters, as needed, without requiring a system reboot; enables administrators to tune the system for the most efficient operation of each type of application, save the settings and schedule them to run automatically at set times during the day; addresses the major problems associated with making critical UNIX control information changes that typically require system outages to implement; and provides the ability to manually (dynamically) adjust system parameters, thereby eliminating the restrictions currently imposed by the UNIX environment.

Contact BMC Software, 2101 CityWest Blvd., Houston, TX 77042; (800) 841-2031; www.bmc.com.

Circle 382 on reader card

Novell Announces NetWare Software Development Kit

Novell Inc. announced the NetWare Software Development Kit for the Java

Platform, a software development kit that enables developers to create Java applications and execute them on NetWare. Java logic can now be distributed to the server. The NetWare Software Development Kit for the Java Platform includes the Java Virtual Machine, a series of NLMs that make applications written in Java executable on NetWare. The development kit also includes the Java class libraries with additional NetWare-specific class libraries to enhance NetWare development.

Contact Novell, 1555 N. Technology Way, Orem, UT 84757; (800) RED-WORD; developer.novell.com.

Circle 366 on reader card

Siemens Nixdorf Raises PC Productivity

Siemens Nixdorf released SmartAssist, which eliminates complex, routine tasks by combining separate activities into processes which can be executed automatically. Jobs are created by dragging and dropping from individual Windows applications. Jobs also can be defined from templates or modeled to existing jobs. SmartAssist integrates standard software already available on the PC such as Word for Windows, Excel, Exchange, X.400, Netscape, Campbell Services' OnTime and SAP R/3. It is fully network enabled and runs on any PC LAN such as Novell, Windows Network, Banyan and LAN Manager.

Contact Siemens Nixdorf, 200 Wheeler Rd., Burlington, MA 01803; (617) 273-0480; www.sni.de.

Circle 365 on reader card

SRAPI Version 2.0 Supports Java

The Speech Recognition API Committee announced Java support for SRAPI Version 2.0. Java developers will be able to add speech interaction to their applets and Internet documents. In addition to Java support, the future intention of the SRAPI Committee is to release the API standard for OS/2, OpenDoc, NetWare and UNIX platforms.

The SRAPI specification is cross-platform creating a standard method for applications to interact with speech technology providers.

Contact SRAPI Committee, c/o Bruce Armstrong, 1555 N. Technology Way, MS: ORM-B211, Orem, UT 84057; (801) 222-5119; srapl@srapl.com; www.srapl.com.

Circle 364 on reader card

Liebert Corp. Offers SNMP Power Management

Liebert Corp. introduced an expansion of its software package for seamless UPS management and monitoring. SiteNet SNMP Manager is now available for two more network environments, PolyCenter NT and SunNet Manager. SiteNet SNMP Manager provides users on both network operating systems with seamless NMS (network management system) integration.

Price for the SiteNet SNMP Manager is \$499.

Contact Liebert, 1050 Dearborn Dr., P.O. Box 29186, Columbus, OH 43229; (800) 877-9222; www.liebert.com.

Circle 363 on reader card

Dharma Systems Inc. Releases Dharma/SQL

Dharma Systems Inc. announced that its flagship product, Dharma/SQL, will allow applications written to the Java Database Connectivity (JDBC) API access to data stored in proprietary (non-SQL) data sources. The JDBC API provides programmers with a uniform interface to a wide range of databases similar to Microsoft ODBC standard.

The Dharma/SQL product suite turns proprietary databases into open databases. Dharma/SQL provides industry-standard SQL, ODBC/JDBC interfaces to any proprietary database.

Contact Dharma Systems Inc., 15 Trafalgar Square, Nashua, NH 03063; (603) 886-1400; info@dharmas.com; www.dharmas.com.

Circle 362 on reader card

SoftLinX Announces Replix Enterprise Fax

SoftLinX Inc. introduced the Replix Enterprise, a Web-based fax server for major corporations. The Replix Enterprise can be configured for a single department installation to a multisite, fault-tolerant configuration and is available on major UNIX workstations including HP 9000/700 and 800 series. The system allows users to send, receive, view, annotate and archive fax documents and supports multiple file formats, fax scheduling based on time and priority, fax mailboxes, e-mail-to-fax integration, remote fax retrieval, private and public phone books and cover pages.

Contact SoftLinX, 234 Littleton Rd., Westford, MA 01886; (800) 899-7724; sales@softlinx.com; www.softlinx.com.

Circle 361 on reader card

Open Market Introduces WebReporter V2.0

Open Market Inc. introduced version 2.0 of WebReporter, a comprehensive tool to analyze Web server activity and access. WebReporter, available as a standalone product, also will be included in version 2.0 of Open Market's Secure WebServer. Features include: new Web user interface for easy access to reporting; session analysis support; and APIs which allow users to customize reporting options, define unique identifiers and create new values to report on. Price is \$495.

Contact Open Market Inc., 245 First St., Cambridge, MA 02142; (617) 621-9500; feedback@openmarket.com; www.openmarket.com.

Circle 360 on reader card

ICL Releases AccessManager

ICL Inc. announced the availability of its AccessManager single sign-on network security product for Windows 95 clients, and Windows NT client and server platforms. It enhances user productivity through single sign-on and automated

login to distributed applications in heterogeneous environments. Role-based access control enhances security and simplifies administration.

Price is \$100 per user, and runs in a client-server environment on HP-UX, Solaris, IBM AIX, NetWare 4.x, Windows NT and ICL UNIX SVR4 server platforms. It supports PCs running Windows 3.x, Windows 95, and HP-UX, X terminal and Sun Motif or OpenLook workstation clients. Contact ICL Inc., 11490 Commerce Park Dr., Reston, VA 22091; (703) 648-3300; accesspoint@iclnet.co.uk; www.icl.com/access.

Circle 359 on reader card

Geac Offers VisionShift For Windows NT Server

Geac Computers Inc. announced the Windows NT Server version of their VisionShift Database Marketing software. The NT version is designed using Microsoft tools to optimize Windows NT Server and Microsoft SQL Server. VisionShift Database Marketing is designed to help newspapers sell more advertising by providing them with detailed subscriber lifestyle data.

Contact Geac/VisionShift, 3707 W. Cherry St., Tampa, FL 33607; (813) 872-9990; vsinfo@geac.com; www.geac.com/vs.

Circle 358 on reader card

Fax*Star Windows-TCP/IP Available

CP² Engineering & Sales Inc. released Fax*Star Windows-TCP/IP. Users can connect via Token Ring or Ethernet, configure it as a print server (LPD-LPR) and a mail server (SMTP) and start faxing e-mail, print incoming faxes to any networked printer, receive fax confirmations and fax logs through a mailbox, upload and download files to Fax*Star, route incoming faxes and forward faxes.

Contact CP² Engineering & Sales Inc., 4001 Westerly Place, Ste. 106, Newport Beach, CA 92660; (714) 724-0102.

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CIRCLE 220 ON READER CARD

HARDWARE

Cybex Adds Server Interfaces

Cybex Computer Products Corp. announced new interfaces to its AutoBoot 4XP and 1XP keyboard/video monitor/mouse (KVM) switches. The new interfaces, in addition to the PC, Macintosh and Sun already supported, include: any HP system which employs HP-HIL (Human Interface Link), including the HP 9000 and HP 3000; IBM's RS/6000; Digital's Alpha; and Silicon Graphic's Indigo platforms. This enables these network servers to be placed in a central location for easier management and helps reduce costs by eliminating the need for a monitor, keyboard and mouse on each server. Price for the AutoBoot 4XP and 1XP is \$795 and \$595, respectively. Contact Cybex, 4912 Research Dr., Huntsville, AL 35805; (205) 430-4000; www.cybex.com.

Circle 381 on reader card

Nikon Offers Beluga Drive

Nikon announced their new Beluga Drive, a direct-overwrite magneto-optical (MO) drive. The Beluga multifunction drive is based on Nikon's LIM-DOW (Light Intensity Modulation-Direct Overwrite) technology which is fully compliant with all current and proposed industry standards. The

system's sustained read and write transfer rate of up to 4 MBps and burst transfer rate of 10 MBps make it ideal for a broad range of mainstream data storage/retrieval applications. Price is \$2,699 for the Beluga drive, and \$160 for the 2.6 GB LIM-DOW MO media. Contact Nikon Optical Storage, 1399 Shareway Rd., Belmont, CA 94002; (415) 508-4674.

Circle 380 on reader card

HDS Introduces X Stations

HDS Network Systems Inc. introduced three X station models, featuring 21-inch Trinitron screens. These models replace the HDS 21-inch Invar mask models.

The ViewStation FX 21CT, with a performance of over 150,000 Xstones, offers options such as PC Card hard disk drives, flash-PROM for local storage and HDS netVideo for multimedia. Price is \$3,299.

The ViewStation Ultra 21CT, with performance of over 260,000 Xstones, is designed for data-intensive applications such as CAD/CAM, digital video or 3D design. Price is \$3,699.

The ViewStation Dual 21CT enables customers to connect two monitors to one ViewStation base, with the ability to manipulate data on either monitor from a single keyboard and mouse, including moving windows or data from one monitor to the other. Price is \$5,599.

Contact HDS Network Systems, 400 Fehleley Dr., King of Prussia, PA 19406; (800) HDS-1551; info@hds.com; www.hds.com.

Circle 379 on reader card

ADL Libraries Certified With SM-arch Software

MediaLogic ADL Inc. announced that its Scalable Library Architecture (SLA) product line will be supported by SM-arch from Software Moguls Inc. SM-arch is a high-performance, client-server-based backup and retrieval system for heterogeneous networks. SM-arch will support the SLA library products on a complete range of UNIX platforms, including HP, Sun, SGI and IBM.

Contact MediaLogic ADL Inc., 4999 Pearl East Circle, Boulder, CO 80301; (303) 939-9780; adlinc@aol.com; www.adlinc.com/adlinfo.

Circle 378 on reader card

Compaq Launches LTE 5000 Notebooks

Compaq Computer Corp. launched the LTE 5280 and LTE 5300 notebooks which feature a modular design, with faster processors, larger displays and increased standard base memory of 16 MB, expandable to 80 MB. They are equipped with 12.1- and 11.3-inch color TFT 800 x 600 screens, and feature the Intel Mobile

Cardinal Business Media Launches PRTECH Web Site Delivers What's New In High Technology

Cardinal Business Media Inc., publisher of *HP Professional*, has developed a World Wide Web site containing news targeting the high technology industry.

The site, PRTECH, serves computer industry professionals seeking information about HP hardware, HP-UX, PCs, HP services or other pertinent material. It holds a database of press releases submitted to *HP Professional* and Cardinal's eight other computer titles, which cover the spectrum of computer operating environments as well as imaging and internetworking.

PRTECH supports natural-language queries and contains predefined keywords users can select to search the database. Users can also query the database based on their own criteria.

"Cardinal Business Media has made PRTECH a complete, compelling and constantly changing site," said Robert N. Boucher, Jr., Cardinal's CEO. "Our site will be a first point of contact for information on high technology solutions and providers."

Cardinal is promoting PRTECH to more than 15,000 vendors, service providers and public relations agencies. The site, which officially debuts

August 1, 1996 will be updated whenever any vendor agrees to put material on it.

"The subscribers to our high-technology publications, numbering more than 500,000, face a great challenge in gathering the information necessary to make the right technology decisions," Boucher noted. "We developed PRTECH in response to this need."

PRTECH will complement, not replace, the considerable news coverage available in *HP*

Professional. Contributors can include a logo and a hyperlink to their Internet sites, so users can access more information. Although PRTECH carries a broad variety of material, users can make their search criteria as restrictive as they like.

"PRTECH provides unparalleled interactive research capabilities," Boucher said. "We know of no other organization currently offering such a comprehensive, yet highly targeted online information resource."

The URL for the site is <http://www.prtech.com>. For more information, visit the site or call the toll-free number: (888) 9PRTECH (888-977-8324).



Pentium 133 MHz processor. The models also are enhanced with the addition of "warm swapping" for the CD-ROM and floppy drive. Supported operating systems include: Windows 95, Windows 3.1, Windows NT 3.51 and IBM OS/2 Warp.

The LTE 5300 costs \$5,999, and the LTE 5280 costs \$5,399.

Contact Compaq Computer Corp., 20555 SH 249, Houston, TX 77070; (713) 514-0484; cpqonline@netgate.compaq.com; www.compaq.com.

Circle 377 on reader card

Mannesmann Tally Offers T9012 Printer

Mannesmann Tally introduced the T9012, a 12 ppm laser printer capable of outputting 600 dpi text, graphics and gray-shades. The print quality is further refined with Edge Enhancement Technology (EET) for smoother edges and elimination of "stair stepping." It has a duty cycle of 30,000 pages per month. The T9012's 2 MB memory is expandable up to 32 MB using 1, 2, 4 and 8 MB plug-in SIMM modules. Price is \$1,590. Contact Mannesmann Tally Corp., 8301 S.

180th St., Kent, WA 98064; (206) 251-5500; www.tally.com.

Circle 376 on reader card

Procom Provides LDLT280G

Procom Technology Inc. introduced a DLT library subsystem that provides up to 280 GB of storage. The LDLT280G can back up data unattended at a sustained transfer rate of 3 MBps. After connecting the unit to the network with a single SCSI cable, network administrators load up to seven 40 GB (assuming 2:1 data compression) CompactTape IV media into a magazine and insert the magazine into the unit. The LDLT280G loads and unloads each cartridge in about 29 seconds, either randomly or sequentially, into the single drive. Price is \$12,995.

Contact Procom Technology, 2181 Dupont Dr., Irvine, CA 92715; (714) 852-1000; info@procom.com; www.procom.com.

Circle 375 on reader card

Viking Produces HP Vectra Upgrades

Viking Components introduced two new product lines for HP's Vectra XU 6/150

desktop computer. The products are ECC DIMMs for general computing and Window RAM (WRAM) for the video card installed in the HP Vectra XU 6/150.

Viking ECC DIMMs ensure the detection and correction of 1-bit and 2-bit errors, and provide a 128-bit memory data path with interleaving. With Viking's DIMMs, available in upgrade kits of 16, 32 and 64 MB, the Vectra XU 6/150 is expandable to 256 MB. Prices are \$1,150, \$2,300 and \$4,290, respectively.

Also, Viking WRAM, designed for simultaneous processing of graphics and screen refresh, enhances the Matrox Millennium's ability to accelerate true color, digital video and 3D renderings.

Contact Viking Components, 11 Columbia, Laguna Hills, CA 92656; (714) 643-7255; www.vikingmem.com.


Circle 373 on reader card


Maxoptix Improves MX Jukeboxes


Maxoptix announced a new family of jukeboxes using their T4-2600 2.6 GB MO drive. The MX family offers capacities ranging from 52 GB to 670 GB, supports

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CIRCLE 258 ON READER CARD

between 20 to over 250 2.6 GB disks and supports up to six MO drives. The available models are: the MX 552 (135 MB), the MX 5104 (270 GB), the MX 5156 (405 GB) and the MX 5258 (670 GB). Pricing begins at \$5,995.

Contact Maxoptix 3342 Gateway Blvd., Fremont, CA 94538; (510) 353-9700; www.maxoptix.com.

Circle 374 on reader card

NeTpower Unveils Calisto Workstations

NeTpower Inc. announced a new family of Intel-based Windows NT workstations offering the performance of UNIX/RISC systems at prices ranging from \$5,295 to \$18,995. Calisto systems come standard in a mini-tower configuration which includes a 200 MHz Pentium Pro, 256 KB of dedicated second-level cache, 10/100 Mbit Ethernet, Fast SCSI-2, 6X CD-ROM, 16-bit SoundBlaster audio, 1.44 MB floppy drive, three 32-bit PCI expansion slots, two 32-bit ISA expansion slots, one PCI/ISA slot, three 5.25-inch drive bays, three 3.5-inch drive bays, two serial ports and one parallel port.

Contact NeTpower, 545 Oakmead Pkwy., Sunnyvale, CA 94086; (800) 801-0900; fastsales@netpower.com; www.netpower.com.

Circle 372 on reader card

MountainGate Expands Stampede Line

MountainGate, a Lockheed Martin Company, announced an expansion of their Stampede family of disk arrays, with the rollout of the Stampede Mini and Stampede Ultra Arrays.

The Stampede Mini Array is a two- or four-bay product, and the Stampede Ultra has eight-bays with RAID support for levels 0,1,3 5, (0 and 1) and JBOD (Just a Bunch of Disks). Like the other Stampede array products, the Stampede Mini Array and the Stampede Ultra Array accommodate interchangeable, hot-swappable 3.5- or 5.25-inch drives (on the fly). The drives range from 2 to 9 GB and are fully-compatible with other Stampede disk arrays.

Contact MountainGate, 9393 Gateway Dr., Reno, NV 89511; (702) 851-9393; www.mountaingate.com.

Circle 370 on reader card

25 in One! Compatible With HP LaserJet 5 Printers

Pacific Data Products Inc. (PDP) announced compatibility with the HP LaserJet 5 family of printers and their 25 in One!

SIMM, a SIMM-based version of PDP's multifont cartridge. PDP's 25 in One! SIMM allows companies that have standardized on the fonts or symbols sets in 25 in One! to maintain that standard with the HP LaserJet 5 printers. It provides 172 bitmap fonts and symbol sets for HP LaserJet 5 and 4 printers, and facilitates the extension of 25 in One! printing procedures to more recent LaserJet models.

Custom printer drivers with WordPerfect 5.1 and 6.x, Windows 3.x and Windows 95, and WordStar 5.x, 6.0 and 7.0 are included. Price is \$299.

Contact PDP, 9855 Scranton Rd., San Diego, CA 92121; (800) 737-7121; info@pacdata.com; www.pacdata.com.

Circle 369 on reader card

Boffin Introduces CD-ROM Jukebox Towers

Boffin Ltd. announced two systems; the JB321 and JB749. The JB321 is a 21-disc Jukebox with three CD-ROM readers, and the JB749 holds 49 discs with seven readers. Each jukebox has a SCSI-2 port for connection to a host system. The JB321 includes software for DOS, Windows and Windows NT systems where a drive letter is available for assignment to each of the 21 CD-ROMs.

The JB321 is priced at \$1,699, and the JB749 is \$3,499.

Contact Boffin Ltd., 2500 W. Country Rd. 42, # 5, Burnsville, MN 55337; (612) 894-0595; sales@boffin.com; www.boffin.com.

Circle 371 on reader card

HP OpenView Program Supports ATL Products

ATL Products Inc., an Odetics Company, announced that HP's OpenView program has extended its support for ATL's automated tape library technology with new releases of the HP OpenView's backup and hierarchical storage management software. The new releases of HP's OpenView OmniBack II backup and HP OpenView OmniStorage HSM software expands support for ATL's hardware on the HP 9000 Series 800 network servers.

The ACL4/52 is a compact library that contains four Quantum DLT 400 high-performance tape drives, high-reliability robotics technology and 52 cartridges of 20 GB each. Contact ATL Products, 1515 S. Manchester Ave., Anaheim, CA 92802; (800) 677-6268; www.atlp.com.

Circle 368 on reader card

GRC Provides Printer Cartridges

GRC released ink jet cartridges and remanufactured laser toner cartridges. The Ink

Cartridges feature brilliant color inks, and sharp, dark blacks. These cartridges offer consumers a high-performance alternative at a significant savings off of the original cartridge.

The remanufactured laser cartridges also produce sharp, black print on graphics and text. Included with each cartridge are detailed instructions, helpful hints and a copy of GRC's comprehensive warranty.

Contact GRC, 20650 Prairie St., Chatsworth, CA 91311; (818) 709-1234; www.printgrc.com.

Circle 367 on reader card

ZNYX Deploys I2O Architecture

ZNYX Corp. announced a PCI-based Fast Ethernet switching architecture designed with Intel's i960 processor. By implementing the Intel RISC processor as a Programmable Switch Engine (PSE) in ZNYX's pciSwitch family of products, ZNYX intends to take advantage of the power of the new intelligent I/O specification, I2O, bringing on-board intelligence and LAN switching technology together.

ZNYX's new pciSwitch integrates multi-port 10/100 Mbps switching on a single PCI card or system. The pciSwitch family is designed to offer multiple 10 and 100 Mbps media types on a single board or PCI-bus system that maintains a high-speed 1 Gbps (1,000 Mbps) link directly to network servers.

Contact ZNYX Corp., 48501 Warm Springs Blvd., Ste. 107, Fremont, CA 94539; (510) 249-0800; www.znyx.com.

Circle 445 on reader card

3M Visual Systems Produces 3M MP8030

3M Visual Systems Division introduced the 3M MP8030 Multimedia Projector. Designed for brightness, with more than 500 ANSI lumens, the MP8030 can be used with the room lights on without sacrificing image brilliance, clarity or color. It weighs just 24 pounds. And, it works with computer and video sources.

The MP8030 uses polysilicon TFT LCD technology and a user-replaceable, super-bright 260-watt metal halide lamp to project dynamic, brilliant images in 16.7 million colors. And the 640 x 480 (VGA) resolution gives each image sharpness and clarity. The MP8030 also supports compressed 800 x 600 (SVGA) resolution.

Price is \$8,495.

Contact 3M Visual Systems Division, 6801 River Place Blvd., Bldg. A, 145-5N-01, Austin, TX 78726; (512) 984-7154; innovative@mmm.com; www.mmm.com.

Circle 444 on reader card

OTC Telecom Inc. Offers AirEZY 900

OTC Telecom Inc. announced its AirEZY 900 wireless Ethernet adapter to Novell Gold and Platinum Resellers and NetWare customers. The AirEZY 900 connects a laptop or workstation to any Ethernet connection. No drivers or additional software are required. The AirEZY 900 can support individual workstations or workgroups. Simply plug the adapter into each user's Ethernet port and plug the receiver unit into a hub port or server port and the connection is complete.

The AirEZY 900 supports NetWare 2.x, 3.x, 4.x, and Windows NT, Windows 95, TCP/IP and AppleTalk. The AirEZY 900 costs \$599.

Contact OTC Telecom, 2036 Bering Dr., San Jose, CA 95131; (800) 770-6698.

Circle 443 on reader card

ADIC Introduces Scalar 224 DLT Library

ADIC announced a new scalable DLT library — the Scalar 224 — designed to provide a low-cost, scalable multiple drive DLT tape library. The Scalar 224 features a proven upgrade path that allows expansion of drives and capacity as a user's storage needs grow. Optionally equipped with the new DLT 7000 drive, the new automated tape library offers up to 1.68 TB of storage capacity and 600 MB per minute native transfer rates.

The base Scalar 224 unit is supplied with 2 DLT drives and 24 cartridge positions, and costs \$27,750.

Contact ADIC, 10201 Willows Rd. NE, P.O. Box 97057; Redmond, WA 98073; (800) 336-1233; support@adic.com; www.adic.com.

Circle 442 on reader card

Best Power Delivers FERRUPS Plug-And-Play

Best Power announced a new "plug-and-play" version of their FERRUPS UPS. The units are designed for communications systems and larger computer applications from 4.3kVA to 18kVA. Select rackmount sizes also are available.

At the heart of FERRUPS is a ferroresonant transformer that provides power conditioning, including protection against sags, brownouts, surges, spikes and lightning strikes.

Contact Best Power, P.O. Box 280, Necedah, WI 54646; (800) 356-5794; sales@bestpower.com; www.bestpower.com.

Circle 441 on reader card

NovaLink Introduces GoAnywhere Modem

NovaLink Technologies Inc. released its GoAnywhere Modem, which combines a wireless network adapter, a wireline fax/modem and a cellular modem on a single Type II PC Card. It incorporates a radio modem that operates over the RAM Mobile Data network, providing mobile computing access to virtually the entire U.S. urban business population; a 14.4 Kbps ITU-compliant

V.32bis/V.42 wireline modem that supports all standard protocols and provides for inbound and outbound fax; and optional cell phone drivers and cables that permit cellular operations. Price is \$529.

Contact NovaLink Technologies Inc., 48511 Warm Springs Blvd., Ste. 208, Fremont, CA 94539; (510) 249-9777; info@novatech.com; www.novatech.com.

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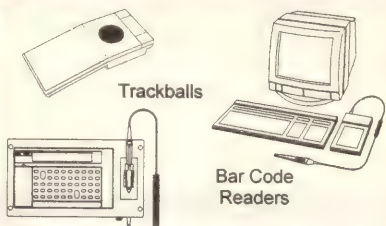


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CIRCLE 255 ON READER CARD

new products**New From HP**

HP LaserJet 5, 5N and 5M Printers — HP introduced three HP LaserJet 5 printers — the LaserJet 5, 5N and

5M — which replace the LaserJet 4 Plus and 4M Plus printers. These new printers use HP PCL 6, HP's next-generation printer language. PCL 6 offers faster graphics printing, improved grayscaling, a new font-synthesis technology and complete backward compatibility. All three printers are designed for small workgroups (up to 10 users).

Enhancements include: new control panel, job-cancel button, paper-level indicators and side handles; new flash memory options; and a new infrared port.

The LaserJet 5 printers ship with: the HP Printing system, which includes Windows 3.1/3.11 PCL 5 driver, Windows 3.1/3.11 PostScript Level 2 driver, Windows 95 PCL 6 driver; Windows 95 PostScript Level 2 driver, JetAdmin printer management software, flash memory utility and FontSmart utility; NetWare NLM; DOS application utilities and drivers; printing software for Macintosh (LaserJet 5M only); and extended software support.

The printers are equipped with a serial port and an IEEE 1284 ECP parallel port with enhanced performance and bi-directional communications. The LaserJet 5N comes network-ready with a JetDirect (10BaseT) card for Ethernet and LocalTalk networks.

The printers have dual paper trays, an optional third paper tray, a duplex printing option and a power envelope feeder. The printers come standard with a total of 110 typefaces (45 built-in typefaces and 65 additional fonts on disk via FontSmart). The LaserJet 5M also includes an additional 110 Adobe Type 1 fonts (35 built-in, and 75 additional via FontSmart).

The LaserJet 5 and 5N printers come standard with 4 MB of memory, expandable to 66 MB, and have three open SIMM slots. The LaserJet 5M printer comes standard with 6 MB of memory, expandable to 52 MB of memory, and has two open SIMM slots.

The LaserJet 5, 5N and 5M printers costs \$1,299, \$1,549 and \$1,799, respectively.

**For more information, contact your local sales office
or call (800) 533-1333.**



The HP LaserJet 5M Printer

TDK Debuts CD-R Disc

TDK announced a Recordable Compact Disc specifically designed for use with thermal-transfer CD-R printers. The new 650 MB discs also accepts compatible adhesive labels. It is manufactured using a special hardened disc overcoat, designed to accept four-color thermal transfer printing. The white surface discs accept high resolution text and graphics, without any risk of damage to recorded data.

Contact TDK Electronics Corp., 12 Harbor Park Dr., Port Washington, NY 11050; (516) 625-0100; tdk@pipeline.com; www.tdk.com.

Circle 439 on reader card

CS Electronics Introduces External SCSI Cable

CS Electronics announced a new terminated SCSI cable for "wide-to-narrow" cabling applications with built-in active termination. With the industry-standard high-density 68-pin connector at one end (active terminator molded-in) and any 50-pin SCSI connector at the other end, the VAR can attach any existing installed (narrow) subsystem to a wide host.

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CIRCLE 102 ON READER CARD

A Toast To The Information Utility



Mark Willoughby
Director of
Marketing,
Data Assurance
Corp.

In the computer industry, everyone — consultants, analysts, vendors, users — are always talking about the future. But who's really doing anything about it? And besides, when everything is changing all the time, how do you recognize the future when you see it. Is it after your Warholian 15 minutes of fame? Or, maybe it's when you plug your toaster into the Internet and get perfectly browned toast with the jelly of your choice — precisely applied by something that looks like an ink jet printer. Well, according to the HP Labs brain trust, located in Palo Alto, Calif., that scenario could be in your not-to-distant future.

GET PLUGGED IN

An "information appliance," according to the agile minds at HP Labs, is a people-serving device which displays, alters or transforms information into something desired by users. But don't confuse this with the more pedestrian concept of the "information utility," which merely provides the plugs. This model for understanding what the HP Lab is up to was presented by Richard Marconi, the technical communications manager for HP Labs, to a Baltimore-Washington HP user's group (RUG) conference this past April.

Because information appliances will provide intuitive solutions for the multitude of facts, figures and multimedia entertainment that's growing by leaps and bounds (at least on the Internet), thinking about information appliances is not that far-fetched. We're talking about rapid acceptance of technologies and products, maturation of trends and cycles, and saturation — at an incomprehensible (to mere mortals anyway) rate.

Dick Tracy had one on his wrist. It worked in real time. And, yours will too. You won't have to tape your 15 minutes of fame and watch them later. You'll be able to watch your own real-time slice unfold, most likely when you're doing something else — like playing golf or shopping or getting your hair done. Your personal care and feeding will be

another job for the information appliance. So when that vacation at some remote seashore cottage is nearly over, you can turn on the electricity, fire up the hot tub and turn off the security alarms in preparation for your arrival back home all while enjoying a final sunset (or sunrise) on the sea.

YEAH, YOU'RE WIRED — OR NOT

The power of the information appliance, however, is extended when it's finally connected to the information utility which gives you connections to other appliances, or to better yet — "utility databases." And connections with a common physical, as well as logical, interface, which will connect to your information appliance, will be everywhere. The physical interface will extend beyond a mere plug to include audio, visual, voice and wireless technologies. An information appliance will also further blur the already nebulous line between consumer electronics and information technology. Imagine your surprise when you can buy a microwave oven with a hundred times the computing power of Apollo 13. With the help of such information appliances, your computer can be controlled by "toaster-like devices," rather than just having them fly randomly about on your screen saver.

Usually only trend setting companies like Sun or Apple talk about such futuristic destinies. But rest assured, the future is not only being scrutinized by HP's best and brightest, but shaped as well. So while it's difficult to think of HP as a "hip and happenin'" company, we should give them credit for sending researchers like Marconi on the road to do these thought provoking presentations. Perhaps HP can yet escape its perception as the naive marketeer which sells cold, dead fish.

— Mark Willoughby has covered both sides of the fence as a professional journalist and computer industry functionary, including HP's marketing and sales ranks. Currently he's "courting disaster" at Data Assurance Corp. (Denver, Colo.), a disaster recovery and business continuity services company.



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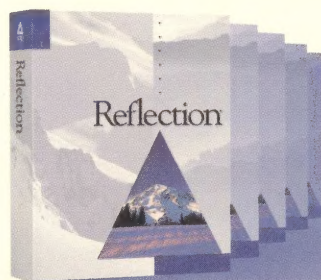


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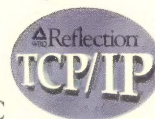
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